THE

Journal of the American Medical Association.

EDITED FOR THE ASSOCIATION BY N. S. DAVIS.

PUBLISHED WEEKLY.

Vol. VII. CHICAGO, DECEMBER 4, 1886. No. 23.

ORIGINAL ARTICLES.

PURIFICATION AND SANITATION BY FIRE.[1]

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We find the following words in the Law of Moses, Book of Leviticus:

"But the remainder of the flesh of the sacrifice, on the third day, shall be burnt with fire." (Leviticus vii: 17.)

"And the flesh that toucheth any unclean thing, shall not be eaten, it shall be burnt with fire." (Leviticus vii: 19.)

"But the bullock, and his hide, and his flesh, and his dung, he burnt with fire." (Leviticus viii: 17.)

"And that which remaineth of the flesh and of the bread, shall ye burn with fire." (Leviticus viii: 32.)

"And the flesh and the hide, he burnt without the camp." (Leviticus ix: 11.)

"He shall therefore burn that garment, whether warp or woof, in woolen or in linen, or anything of skin, wherein the plague is; it shall be burnt in the fire." (Leviticus xii: 52.)

"Thou shalt burn that wherein the plague is with fire." (Leviticus xii: 57.)

"And if aught remain until the third day, it shall be burnt in the fire." (Leviticus xix: 6.)

Latter day philosophers may question if all Scripture was written by inspiration of God, but every true Christian believes it faithfully. Wherever a weak faith would be staggered, perhaps overthrown entirely, the stronger can find secure refuge in the omnipotence and omniscience of God, and in the admitted fact that "now we see through a glass darkly." It is, however, gratifying to the believer when the progress of science brings us to a more exact comprehension and belief in doctrines and practices taught and enjoined by the inspired lawgiver over 3,000 years ago. Of such a character is the sanitary doctrine of purification by fire.

While the practice of burning up things considered to be unclean has probably always obtained to some extent, even before the Law of Moses, it is only recently that science has given us a sound logical reason for so doing—thus extending our horizon of knowledge immensely and to our manifest advantage. In this direction, after a brief preliminary review of the subject, it is our wish to call special attention to cases where we think it will be well for us and our posterity if we destroy foulness and uncleanness by fire.

It will be hardly proper here and now to dilate upon the doctrine of noxious germs, and their spores, and their methods of multiplication around us. For our purpose it will suffice to say that all the scientific world believes them to be at least the bearers of contagious diseases, the disseminators of sickness and death with their attendant misery and unhappiness. How to limit their action—how to prevent their ravages—how to do away with them altogether, have become the pressing sanitary problems of the age. Any advance conducing to these ends should be worthy of our earnest attention and sympathy.

When the "Committee on Disinfectants of the American Public Health Association," made their report and formulated their "Conclusions," in December, 1885, the *first* and *best* treatment recommended by them "for all spore-containing infectious material," is "fire—complete destruction by burning." "For infectious material not containing spores," is "fire—complete destruction by burning." "For clothing, bedding, mattresses, blankets, rags, etc., soiled by infectious material," the first and best recommendation is, "fire—destruction by burning." Evidently this Committee, well educated and intelligent, with all the aid and assistance to be derived from the brightest lights of modern science, can only endorse and recommend the practice enjoined by Moses—and thus aid in proving, to reasonable men, the inspiration of the sacred volume.

One question remains to be discussed before we are ready to apply our doctrine of purification by fire—and that is: What are "spore-containing infectious materials?" This question opens up a boundless sea of inquiry, whose limits have been only partially surveyed by science, and its chart only here and there dotted with the islands of known facts; while numberless undiscovered continents of facts are still waiting the advent of the enthusiastic searchers who are surely on the way to find them. We know already that small-pox victims can give off contagion—that clothing, blankets, bedding, rags, soiled with its infectious germs, can disseminate the disease. Of typhus fever, typhoid fever, yellow fever, scarlet fever, diphtheria, measles, etc., we know that contagion spreads from one to another in various ways. In the lower animals we are assured that anthrax fever, pleuro-pneumonia, Rinderpest, glanders, actinomycosis, hydrophobia, hog cholera, chicken cholera, etc., are all easily transmitted after their kind. This is positive knowledge, known facts, ready for us as sanitarians to act upon in a well defined manner and after scientific methods. But who can tell us where noxious germs do not find a habitat and

[1] Read in the Section on State Medicine, at the Thirty-Seventh Annual Meeting of the American Medical Association.

a breeding-place? Who can say in what kind of filth an innocent germ, finding a resting place, may not develop morbific tendencies, and thereafter breed agencies of death and destruction? Who can tell where the first seed-germs of small-pox and typhus fever come from? Who can deny that every decomposing dead body may not originate a poisonous something which will be inimical to the life or health of its neighbor? We know that the history of sanitary supervision of large cities and towns shows a magnificent result for feeble efforts to destroy noxious germs and their spores or seeds, and to enforce cleanliness. The earnest labors of the health officers of London have diminished its mortality nearly 100 per cent. The bringing of purer water, comparatively uncontaminated with germs, to Munich, is said to have almost banished its greatest scourge, typhoid fever, from that city. We have no doubt that the near future will see even greater benefits from scientific sanitation, more especially when purification by fire is used to its fullest allowable limit.

And now—how, when, and where, and in what cases, shall we employ this first-class, most excellent purifier?

How to make use of Fire as a Purifier.—Expensive crematories, though all right in their place, are by no means necessary even for the decent disposal of dead human bodies. We can erect at a small cost, on a side hill, something like an old-fashioned lime-kiln, consisting of stonework for the stack, an opening below and in front for ash-pit and draft, above that an opening for a fire-box, closed by an iron door, with grate bars both above and below; above that, on the upper grate bars, with entrance and exit through a proper iron door, the place for incineration of the dead body; still above and on top of the stack, a large opening, to be closed by an iron door when necessary, serving for vent to gases of combustion, and also for the introduction of dead animals whose ashes we do not wish to preserve, or for dumping a cartload of household waste that we wish destroyed. To build and operate such a crematory would certainly be inexpensive, while it would as certainly be efficient for all purposes. Convenient brush piles could be made useful for many necessities of purification. Open fireplaces in house or kitchen could destroy many things condemned by sanitary laws. A sheet-iron oven, made to be placed over an opening in a kitchen stove, has been recommended for the destruction of the organic waste of a household. The same device, fitted to an old stove in the back yard, might be utilized to destroy the poisonous excreta of cholera, typhoid fever, etc.

When and Where to use Fire as a Purifier.—Though our knowledge on this point is limited as yet, we believe that Moses was in accord with, perhaps in advance of, our modern science, in directing nitrogenous waste to be burned on the third day, without the camp. We already know that infection becomes powerful by the third day, that zymotic and septicæmic diseases at that time reach their first acme, and that putrefactive processes are then well developed in a dead body. A widespread belief, not thoroughly authenticated as yet, so far as we know, declares that the combustion of infected material, such as bedding, can carry contagion through the air. If this be true, it would seem necessary to burn infected material "without the camp."

In what Cases shall we Purify by Fire?—First, by the cremation or complete destruction by fire of all the human dead, by the third day, if not before in the case of infectious diseases. It is not material here to do much more than to record the rapid acceptance among educated men, and especially among physicians, of the doctrine of the cremation of all human dead, as a necessity of recent advances in sanitation. Science points to it with unerring finger as the best method of disposing of the dead who are known to have been slaughtered by infectious diseases, and not much less decidedly of those whose less infectious bodies are known to develop the lethal gases of decomposition and the deadly ptomaines. Very few persons will deny the propriety of burning up the bedding, etc., of a victim of small-pox, for a sad experience has taught us that it is necessary. That a human body dead of the same disease can give off contagion is no less certain—hundreds of cases tracing their infection to a public funeral, bear witness to this admitted fact. Even if we bury such bodies hurriedly, and at dead of night, who can say how long, even in the grave, the contagious material remains efficient and powerful for evil? We know well that rags may hold infection for a long time, especially when deprived of light and air. We know that every marked excavation of earth, even in house building, or railroad cuttings, is liable to cause sickness in the vicinity, and what is the earth everywhere but the graveyard of the animal and vegetable kingdoms for ages past! We know that to build over an old graveyard is to invite death into the house. We know that water draining from a graveyard is liable at the very least to contain a dilution of noxious nitrites and deadly ptomaines, and is considered a fair explanation of a sickly neighborhood. The argument from cases of small-pox comes home more strongly to untrained intelligence, but physicians know that every dead body, not quickly and completely disinfected, is a hotbed for poisonous gases and for chemical products as deadly as prussic acid. Shall we, then, hesitate to encourage cremation of human dead, when we know that our air, soil and water, are daily making their protests against the unsanitary method of burial in the ground? With all its admitted disadvantages, and there are some hard to deny, the scale of science and reason leans most unmistakably in favor of the cremation of all human bodies.

Second. But if our present method of disposing of dead human bodies is very objectionable and decidedly unsanitary, who can defend the usual practice of allowing the dead bodies of the lower animals to lie exposed on top of the ground, or to be cast into our running streams? Do not such decomposing bodies also give off infectious diseases, and also give off the horrid putrefactive gases, and generate deadly ptomaines? Is it not a known fact that anthrax fever has been transmitted to man in the form of malignant pustule, and especially to butchers, tanners, wool sorters, furriers, horsehair cleaners, hostlers, etc., who

handle the diseased animals or their products? Is not that terrible disease, glanders, frequently caught by man? Only our great lack of definite knowledge as to the diseases of animals and their contagiousness by man limits our view in this direction. If, then, we continue to allow dead animals to decompose on top of the ground, and their remains to be mingled with the dust to be carried anywhere, everywhere, by the winds of heaven, how can we hope that the almost indestructible spores of disease may not assault us even in the seclusion of our homes and by our firesides, where we ignorantly believe ourselves secure? But even if we bury them under six feet of soil, that grand apostle of microbes, Pasteur, has conclusively proved that the humble earthworm may bring the death-dealing germ to the surface, deposit it on vegetation, or allow it to be tossed into the air by the wind, and thus permit it to begin a new cycle of destruction. Truly it would seem as if the whole animal kingdom, including man, were engaged in a most serious struggle for existence with the pestilential germ; the battle is *à l'outrance*, and we can afford to neglect no precaution that will ensure us the victory. The only safety seems to be to call to our aid the great purifier, fire, which the most recent teachings of science tell us is ready and able to utterly destroy both germs and spores that, less efficiently controlled, would increase and multiply till the whole earth might be as full of them as Russia is said to be of the dreaded Rinderpest. When will the day come when active, efficient, intelligent Boards of Health, all over the land, will bend their energies to the complete solution of this great sanitary problem; when the prevention of disease in men and in animals will be entrusted to enthusiastic and skilful hands, giving us some hope of definite progress towards health and prosperity for all?

Third. Does decaying vegetable matter breed sickness and death? Should purification by fire be applied to decomposing materials of this character? These questions have been practically answered in the actual experience of cities where great ovens have been constructed where wagon-loads of household waste, bread, meat, vegetables, bones, rags, etc., are daily purified by fire until only a valuable fertilizer remains. The decreasing mortality in such cities is a loud-voiced argument in favor of this practice, and it does not need dilating upon, beause neither sentiment or reason would oppose it, except on the ground of expense.

Fourth. The most recent developments of science are warning us to be more careful about the sputa of consumption. Very few educated men are now found willing to deny that consumption is contagious, and that the germs of contagion are contained in the expectoration. If the sputa are deposited on the floor, on the street, or in running water, who can tell where the germs may finally land, or who may be the next host! Who can say that ignorance or neglect as to the proper disposition of such infected sputa, may not transform even the most eligible health resort into a place where it is dangerous to send a consumptive patient, because the germs are there becoming more and more widespread and abundant! The certainly adequate remedy is to deposit the infected sputa in antiseptic sheets of paper, or in a cheap medicated paper cup, or on rags, or even on fine handkerchiefs in an emergency—each and every one of these receptacles to be subsequently purified by fire. The sputa of diphtheria, considered highly contagious, should be carefully treated in the same way.

The excreta of typhoid fever, and of cholera, are certainly known to contain the particulate germs of those diseases. The sad experience of Plymouth, Pennsylvania, where the excreta of one case of typhoid fever were carelessly allowed to contaminate the drinking water of the city, is trumpet-tongued in its commands to us to thoroughly purify all such excreta. What purifier can be so safe, so cheap, and so easily applied as fire?

Fifth. Does the allowable limit of purification by fire end here? Not at all. Every blighted or dead tree, or a branch of a tree, or a plant, or a vine that threatens to carry infection to its kind, should be utterly destroyed by fire. Failure to do this is a sad mistake that horticulturists frequently make, to their damage and discomfiture. They should fight the germs of infectious disease in their orchards and gardens whenever they can be found, and no agency can be used so certain and sure in its action as fire; let them tear out the offending plant and allow this beneficent purifier to do its perfect work.

The infectious diseases of the graminaceous plants are most efficiently treated in this way. The diseases called smut and rust are the best known, and cause very serious damage to crops. The straw and the stubble of such grain should be sedulously burned. Rotting corn shocks, decaying straw stacks, decomposing hay ricks, are generally the sources of infectious disease after their kind—that farmer who permits such uncleanness will surely regret it. To detail all the cases where such an efficient purifier can be, ought to be, used, would extend this essay beyond proper bounds, therefore we enunciate as a general doctrine which admits of very few exceptions—*that infectious material, foul-smelling things in process of decomposition, organic waste, useless rubbish, should be burned up completely.*

PLEUROTOMY FOR EMPYEMA. RECOVERY.[1]

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J. M. T.; male; colored; aged 40; married; one healthy child; always well until two years ago, when he had a severe attack of dysentery, followed by a hepatic abscess that pointed in the epigastrium, where it was opened by a physician; a drainage-tube was inserted and antiseptic injections employed; no antiseptic dressings; discharge ceased in four months, after which he regained his usual health.

He had no other illness until April of this year, when he began to have malaise. In June he began to have pain in right shoulder and arm; no pain, however, referable to hepatic region; later pain

[1] Read before the Medical Society of the District of Columbia, on October 20, 1886.

changed to right side of chest; then he lost flesh and strength; had hectic, night sweats, anorexia, slight dry cough, gradually increasing dyspnœa. Until he came under my care, August 8, he had worked as usual but, although his duties were very light, he was scarcely able to perform them.

Physical Examination—Inspection.—Patient looked much worn and very ill, marked dyspnœa, moderate emaciation, movements of right side of thorax in respiration markedly diminished, fulness of intercostal spaces on that side; decubitis on back, right side being too sore to lie on, and, if lying upon left side, increase of dyspnœa; right side measured one inch more than left.

Percussion and Auscultation.—On *left* side, exaggerated respiratory murmur, increased resonance. On *right* side, the usual signs of fluid in a pleural cavity. The whole of lower back was flat on percussion, upper back dull; in front flatness extended to upper border of fifth rib, and a little higher in axillary region, when patient was erect; in recumbent position the line of flatness noticeably lower, but its exact position was not accurately noted.

The patient was informed that there was probably pus in his chest, but that an exploratory puncture would be necessary. To this he consented, provided it was deferred for a few days. Four days later, at his house, the exploration was made. A long needle attached to an ordinary hypodermic syringe was used; a syringeful of dark-colored fluid, free from odor, was obtained. Patient was told that immediate aspiration was demanded, but that it would probably be necessary soon to open his chest and introduce drainage-tubes.

On the next day, August 13, T. 103°, P. 110, R. 30. Assisted by Dr. Cuthbert, I aspirated in the sixth intercostal space posterior axillary line; needle went in one and a half inches without striking fluid; it was then pushed a little further, and felt to pass through some resisting substance, after which fluid was obtained; aspiration was done very slowly; patient experienced no discomfort whatever, not even coughing; thirty-eight f. ℥ of thick fluid drawn off, of consistency and color of thick chocolate, odor of beef tea.

Microscopical examination of fluid by Dr. Shute and myself, independently, revealed a great quantity of leucocytes, granular and fatty detritus, clumps of amorphous coloring matter which was amber where thin, where thick, reddish; no liver cells and no crystals of any kind; a few red blood corpuscles.

He slept well that night; no pain. On the following day he breathed easier, appetite better, respiratory murmur over whole of previously flat area. In a few days later, however, patient gradually got worse, fluid reaccumulated; *pleurotomy* was decided upon.

August 22d, day of operation, nine days subsequent to aspiration, T. 100°, P. 120, R. 30. Noticed bulging in right axillary region, apparently due to serous infiltration of subcutaneous tissues, but no pitting on pressure. The seventh intercostal space posterior axillary line was chosen as point of incision; an exploratory puncture made at that point proved the presence of fluid, which was free in the cavity as indicated by change of line of flatness with change of position of patient. A great amount of serum oozed from the subcutaneous tissues at the point of puncture, and noticeable diminution of the bulging mentioned ensued. Fifty minims of four per cent. solution of cocaine were then injected along the line of proposed incision; five minutes later a free incision was made through the tissues into the pleural cavity. Patient suffered no pain, and was hardly conscious that anything had been done. Full antiseptic precautions were taken, including carbolic spray. Thirty-two f. ℥ of fluid of same kind as that previously obtained by aspiration, escaped. Cavity was *not* washed out. Two one-fourth inch rubber tubes were inserted, their ends barely reaching the inner wall of chest; they were then fastened by a safety pin and by adhesive plaster, their ends cut off close to the skin. The following dressing, devised by Dr. A. T. Cabot, of Boston, was then applied: First, a handful of antiseptic gauze, loosely made into a ring, was put around the tubes; a little loose gauze placed over this; next, a piece of Mackintosh, about twelve inches square, large enough to go beyond the gauze in every direction on to the bare skin; finally, twelve layers of antiseptic gauze, outside of which a layer of cotton wadding was laid, and the whole firmly bandaged, a turn being taken over the shoulder to keep the dressing from slipping down.

Patient was much more comfortable after than before the operation. Drs. Cuthbert and Shute assisted me. That evening patient was very easy; temperature normal, being 1½° lower than in the morning. The dressing was soaked through somewhat, but was not changed. Subsequently, with one or two exceptions, the dressings were changed every morning under the spray.

Two days later the urine became olive-green when passed, almost black on standing. A 1 to 15 solution of chlorinated soda was then substituted for the carbolic acid in the spray, and in a day or two later, as the urine continued dark, the carbolic acid was rinsed from the gauze that went next the skin; a few days later still bichloride gauze was used throughout. After September 17 gutta-percha cloth used instead of Mackintosh. One of the tubes was omitted as soon as the discharge became considerably diminished.

Nothing of interest occurred until about a week after operation, when there was a slight rise of temperature for a few days, during which patient complained of pain and tenderness of right side. August 31, just after taking morning temperature, patient had an urgent call to evacuate bowels; on coming from closet, said he had passed a large amount of matter like the discharge from his side, but had not preserved it; temperature had fallen 6°. The two following days he said he had five or six similar evacuations, all accompanied with slight pain, but he did not save them, although directed to do so.

Up to that time the discharge from chest was very copious, but from that date there was a marked decrease in quantity; color gradually became less and less chocolate-like, but more yellowish, until it was only a few drops in twenty-four hours. On Septem-

ber 26 *the tube was removed, just thirty-five days after operation*, and the following day he went to his work.

Improvement in his general condition followed immediately the operation, and marked improvement from the time of the unusual discharge from the bowels. He was kept in bed but two or three days.

On October 10 the sinus was entirely healed; he had gained twenty pounds in weight, and was feeling perfectly well and strong. Patient was examined by Dr. Cuthbert and myself, and we found but little retraction of the chest wall, lung normal, except a little enfeeblement of respiratory murmur at the base.

The medicinal treatment consisted of the exhibition of: Stimulants, ½ ʒ doses of sulphate of soda for a few days to counteract the toxic effects of the carbolic acid; tinct. of chloride of iron and tinct. of digitalis for about a week; afterwards, elixir of iron, quinine and strychnine and cod-liver oil.

Having given the history of the case, I wish now to discuss, as briefly as possible, its most interesting features.

Diagnosis.—It is sometimes difficult to differentiate right sided pleurisy from a large abscess of the convexity of the right lobe of the liver. In this case, however, the variation of the line of flatness with the position of patient indicates the presence of free fluid, which can only be the case of fluid in the pleural cavity. The purulent character of the fluid can only be determined with certainty by the exploratory puncture, although the hectic night sweats and great constitutional disturbance lead one to suspect such. A writer in "Pepper's System" says that œdema of the chest wall is almost characteristic of pus in the pleural cavity. This symptom was present in my patient.

Here I desire to make a plea for the more frequent use of the hypodermic needle for exploratory purposes; it is of invaluable aid in diagnosis, and with antiseptic precautions is free from danger. A little longer and somewhat stouter needle is preferable in order to insure its passage through a thickened pleura, and to avoid the slight danger of its breaking.

Etiology.—As is usual in empyema, the cause in this case is obscure, yet one can not help suspecting the liver to be primarily at fault, although the evidence in that direction is by no means conclusive. The patient first had pain in right shoulder and arm, a not unusual symptom in hepatic trouble. The fluid is not what one usually gets in empyema, nor can I find a description of such ever having been found, but a writer in "Quain's Dictionary" states that in abscess of the liver a chocolate-colored fluid is sometimes present; he also says, if a patient has a sudden and copious expectoration of such colored matter, we may consider this sufficient evidence that a liver abscess has burst into a bronchus. *May not the fluid in my patient's chest also have come from the rupture of a liver abscess?* Had this been the case, however, one would expect the history of sudden and acute pain in the chest, accompanied by marked prostration or even collapse. The patient had nothing the kind, but he does say that pain and soreness of chest, with dyspnœa, followed and replaced the pain in shoulder.

You will remember that two years ago the patient had a liver abscess. *May not a purulent focus have remained dormant from that time until his present illness?* It is well known that abscess of liver is frequently multiple, and may give rise to no symptoms for years. On the other hand, had the abscess been at the convexity, he may very naturally have referred the pain and tenderness to the chest. The microscopical examination of fluid was negative as far as the liver is concerned. It is to be regretted that the patient's description of the unusual discharge from bowels can not be verified. Assuming that he was correct, *where did the matter come from?* One would suspect from the sudden decrease in the amount of discharge from the chest that followed this event, that there must have been a communication between the pleural cavity and the intestinal canal.

As was remarked before, the etiology of this case is uncertain, although one is tempted to regard the liver as the primary seat of the mischief.

Prognosis.—Cases of empyema after operation by the usual methods, even under the most favorable circumstances, usually require months and sometimes years before the final closure of the cavity. Dr. Cabot reported in *Boston Med. and Surg. Journal*, Aug. 16, 1883, fourteen cases in which he used his dressing; the ages of his patients varied from 1¼ years to 33 years; eleven recovered; two died of phthisis; one of unknown cause; the average length of time before removal of tubes was only twenty-four days. He recently told me that he has since used the same method with excellent results, and still clings to the spray. In this case reported above the tube was removed in thirty-five days.

The completeness as well as the rapidity of recovery is noteworthy. This result is due partly to the prompt recognition of the disease and to the speedy performance of the operation, but especially to the peculiar dressing used, its antiseptic character, and to careful antisepsis throughout.

A free opening into a pleural cavity, of necessity, permits ready entrance and exit of air. As a result, the lung is semi-collapsed, and expands only in proportion as the cavity is obliterated by the formation of adhesions between the pulmonary and parietal pleuræ, and by sinking in of ribs. It sometimes happens, under the ordinary treatment, that this process takes place so slowly that the lung is permanently kept high in the cavity by adhesions sufficiently strong to completely prevent its further expansion and descent, recovery then only taking place after resection of some of the ribs.

It is believed that in the Cabot dressing, the Mackintosh, lying snug to the skin as it does, acts as a valve, allowing the exit of air and fluid but preventing the reëntrance of air, thus giving the lung an excellent opportunity to expand fully and at once. The entrance of air is also hindered to a certain extent by the many layers of gauze outside the Mackintosh. The cotton wadding secures elastic pressure and keeps the Mackintosh firmly applied to the skin, yet allowing it to be lifted up for escape of air and fluid.

As to injections into the cavity, one finds equal

authority for and against. It is usually a safe thing to do, but sudden death has occurred with sufficient frequency to warn us to be very careful to use great gentleness, and not to inject a large quantity of fluid suddenly. Carbolic acid should be use neither in the injecting fluid nor in dressings next the skin. Dr. Cabot had serious symptoms in one of his cases from absorption of an exceedingly small amount of carbolic acid. In my case the prompt occurrence of melanuria gave ample evidence of absorption, although there were no other toxic symptoms.

No injections were used at any time in this case, because there were no clots in the cavity, no fetor, and because it seemed to me that by separating the pleural surfaces and by mechanical violence they would prevent the formation of the needful adhesions.

The object of having the tubes barely long enough to reach the cavity is to avoid irritating the pleura, for long tubes and catheters act as foreign bodies, and tend to keep up suppuration.

HYGIENE OF PERIODIC FEVERS.[1]

BY W. L. SCHENCK, M.D.,
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So commonly accepted is the theory that periodic fevers, neuralgias, dysentery, etc., are caused by a specific poison, that one may feel lonesome in combating it. But truth is not evolved by following the beaten path when it leads away from the truth. As neither the etiology, pathology, therapeutics or hygiene of periodical disease point to the specific factor known as malaria, whether it be a gaseous exhalation, a septic poison, a microscopic germ or a myth, we see no reason for adherence to the dogma.

Correct etiology must always precede scientific and successful hygiene. Without it all results are empirical. And when we resort to a causation of which, as Dr. Bemiss[1] says, "it must be admitted the substantive essentiality remains as yet undemonstrated," and Dr. Bartlett,[2] "neither the strongest lenses of the microscope nor the most careful analyses of chemistry have succeeded in discovering the faintest traces, even, of the composition and character of these invisible, mysterious, yet stupendous agencies," hygiene must still be empirical. If such a factor can account for the pathology of periodic fevers, we should cease to wonder at the incomprehensible results claimed for homeœopathic dynamizations. Dr. Bemiss says:[3] "During a chill the blood driven from the surface must be accounted for elsewhere, and every chill implies a condition of congestion." If this is true, it must be equally true in all cases in which the blood is driven from the surface. What are the conditions that always precede and are associated with periodic fevers? Hot days and cool nights, sensible and more or less marked alternations of temperature, conditions whose effects are always intensified where added moisture enervates during the day, and by its condensation makes the night more chilling, as in countries abounding in swamps and marshes.

During the heated days of temperate and tropical climates, especially when their impress is intensified by an atmosphere rarefied by excesssive evaporation, by excessive exposure and labor and by improper food and habits, there is always physical exhaustion. During the cool nights that follow such days there is a recession of the circulation from the capillaries of the surface, and consequent engorgement of central organs, which, in the enervated condition of the patient, often fail of normal balance. If the congestion of internal organs, through over-distension of their vessels, in fully developed ague, leads to their re-engorgement in twelve, twenty-four, forty-eight or seventy-two hours, the intervening periods growing shorter when the effect is positive and longer as it subsides, or if the febrile reaction and sweating does not wholly relieve the congestion, and because "*ubi irritatio ibi fluxus*," they are again and again engorged, each subsequent engorgement making easier the conditions of its successor, and ultimately sufficient to keep alive the action regardless of its primitive cause, then the same is true of the nightly recession from climatic influences, which must lead up to positive periodic diseases, capable of recurrence from slight exciting causes long after removal from palludal districts.

If this rational etiology is sufficient to account for periodic diseases, why resort to the gratuitous inference of an intangible malaria, which neither explains or is explained by their pathology or therapeutics, and does not aid in their prophylaxis? When we mark how wide a range the advocates of a specific "swamp poison" must give for its production, that it may cover the widespread cases of periodic fevers, we can but wonder at the general adherence to the doctrine. While the common thought is alluvial districts with abounding swamps, in hot climates, it is made sufficiently flexible to cover all cases, and accommodates itself equally well to a want or excess of factors. Thus Dr. Bancroft says: "A humid soil, abounding in vegetable remains, acted on by a heat ranging from 75° to 100° F. is the most favorable for the extrication of malaria." Pringle tells us periodic fevers have prevailed with great violence in the Dutch Brabant, where the soil is dry and sandy. Elliottson says that clayey soils are most favorable to the production of these fevers, on account of the clay retaining moisture. Linnæus wrote his "*Hypotheosis nova de febrium intermittentum causa*" to prove that intermittents abound where clay abounds, and only in such places; while McCulloch says that around the Dal in Normandy, where there is a salt marsh, scarce an inhabitant escapes ague. Though prevalent in certain districts, periodic fevers have occurred wellnigh everywhere. In this country they are found among the mountains of New England, throughout the great Valley of the Mississippi, on the Gulf coast and Pacific slopes, while neither the sea-girt isle nor the sand-bound oasis wholly escape their presence. But the advocates of a malarial poison not only give it a wide distribution, but make it equal to all emer-

[1] Read in the Section of State Medicine and Hygiene, at the Thirty-Seventh Annual Meeting of the American Medical Association.
[1] System of Medicine, by American Authors, vol i, p. 589.
[2] Treatise on Fevers, p. 347.
[3] Op. cit.

gencies. Thus Dr. Bemiss (op. cit.) says it is a specific poison, probably an organism, and not capable of reproduction within the system, but is so slowly removed that after long systemic residence it may cause vernal attacks, though the subjects of these long delayed attacks have never suffered a paroxysmal seizure.

If, in the production of periodic fevers, we can eliminate every etiological factor except alternating heat and cold, and if these alone are not favorable to the production of malaria, or malaria bacillus, and will account for all their phenomena, while an undemonstrated malaria cannot, why longer adhere to an occult entity? A careful study of individual cases of endemics or epidemics will always result about as follows: Aug. 30. Called to see A., aged 7 years. Days hot and nights cool. House healthily located. Patient had remittent fever; had slept for several nights, without cover, between open windows. No other member of the family similarly exposed, and no other case.

Sept. 1. Saw B., aged 30; laborer. Had congestive remittent. Worked hard during the day, and slept in his damp clothes without sufficient cover. D., occupying the same room, put on dry night clothes and slept between blankets, and had no fever. Sept. 2. Saw E., farmer. Had intermittent. Enjoyed the cool of the evening air in his shirt-sleeves and was not careful about keeping well covered at night. Sept. 3. Called to see the family of E. Three members, father and two children, sick with "malarial" dysentery. They were living on the upland prairie, in a newly erected shanty, built in a cornfield, the corn cut up for about twenty yards about it. Want of circulation made the days warm, while condensation by surrounding vegetation made the nights very chilly. The people were poor, badly fed, and regardless of protection against the fall of temperature. And so we find those living on a knoll, near a body of water, especially if the water is shallow and evaporation increased by the heat of the earth beneath, suffering from periodic fevers, while those protected by a belt of shrubbery, or living over the knoll, escape.

On the other hand, we have such cases as that of the English surgeon, who had his bunk erected over a marsh in Hindostan, where, wrapped in blankets, he slept with impunity, while the careless soldiers who slept in the neighborhood were decimated by congestive fevers, and those living on the Pontine marshes in comfortable homes, and careful about night exposure, escaping, while their neighbors, disregarding such precautions, become victims of the Pontine fever. Women, though more delicately organized than men, and more poorly clad during the day, often escape because more careful to cover their nakedness at night, while men and children, of either sex alike, lie half covered at night, and suffer from periodic fevers. So we might continue to elucidate, but such cases are sufficiently suggestive.

The "malaria" so common to swamps, lagoons and marshes, to alluvium subject to overflow, or grounds made damp from other causes, in locations and at seasons when the days are hot and the nights cool, and not common to other localities, altitudes and seasons, is not a septic poison or a microscopic germ, but an alternating temperature, whose impress is always intensified by abounding moisture, and whose etiology is sustained by the pathology, treatment and hygiene of the diseases induced.

The pathological conditions are so marked they leave no question. Whether fever is produced or not, there are certain well known pathological changes. There is recession of the circulation from the surface and consequent infarction of central organs which, when the chill is severe, is sometimes so great it may be demonstrated by a post-mortem. There is reactive force and engorgement of the superficial capillaries, followed by excessive sweating, consequent upon over-stimulation of the sudorific glands. If the periodic influences are continued, they are marked by certain permanent changes in central organs, usually most prominent in the spleen and liver. In the spleen, for example, there is emphraxis, and in some cases of the pernicious type, rupture, ulcers or gangrene. Following the splenic engorgement is hypertrophy or hyperplasia and consequent leucocystosis or leukæmia, and hæmorrhages. All these conditions may occur without febrile paroxysm, and when present may keep up the fever without regard to the primary cause, for, as Dr. Bemiss says (op. cit): "the blood driven from the surface must be accounted for elsewhere," and the mighty chill that follows the exhausting heat of damp climates will produce a corresponding degree of central congestion, and in an enervated system lead up to a pronounced chill and fever.

The advocates of "malaria" admit the necessity of alternating temperature. Thus Dr. Elliotson says:[4] "During the heat of day there is a disengagement of malaria, and consequently when night comes on there is more precipitated. Cold and wet are always most operative after heat." Does the learned professor add anything by assuming a factor that explains nothing? Dr. Bemiss (op. cit.) tells us "there is no other known agency capable of originating the morbid phenomena characterized by such marked periodicity." Periodic reactionary effect marks many diseases not consequent upon "malaria," as uræmic fever, hectic fever, etc. While "malaria" has never been demonstrated, periodic alternations of temperature are demonstrable, and their natural consequent is periodic disease. Periodicity is a great law of nature. It marks every function in the economy of life. As pathology is only morbid physiology, we may infer that pathological periodicity is only a diversion of physiological activity, and it is far more rational to refer it to periodic alternations of heat and cold than to an assumed microscopic swamp devil sent to "torment us before our time."

Therapeutics not only confirms our etiology and pathology, but disproves the idea of a specific poison, whether it be a septic decomposition or a microscopic germ. The sulphate of quinia outranks every other agent in the treatment of periodic fevers, not because it is the most powerful antiseptic or germicide, but

[4] Practice, p. 257.

because of its action upon the trophic nerves. Dr. Bemiss but echoes the opinion of all when he says "the great indication is to secure cinchonism as speedily as possible." And yet, we must say this *cum grano salis*. He who gives it as a routinist may kill his patient with the best antiperiodic in the pharmacopœia, for it is powerless to cure when permanent organic lesion keeps up the periodic action. In antiperiodic doses it equalizes vital force by promptly and powerfully impressing the central nervous system, thus relieving engorged and congested central organs. In toxic doses it preserves the restored balance. In antiphlogistic doses, even when there is organic change beyond its reach, it temporarily restores balance, arrests destructive metamorphoses and reduces pyrexia.

What has hygiene accomplished under the prevalent idea of causation? Have any means been discovered to destroy the undiscovered entity—malaria? The drained marsh, until thoroughly dry, has only increased "palludal" fevers by increasing evaporation aud consequently intensifying diurnal and nocturnal alternations of temperature. Germicides and antiseptics are impracticable and useless.

The only effective, because the only rational hygiene, is found in avoiding exhausting labor during the heat of the day, replacing, as the chill of night approaches, damp clothing for such as is dry and warm, and sleeping between comfortable blankets, keeping out of the chill and damp of night, or providing against it with proper clothing, and in avoiding all irregularities, and by healthful exercise and diet. By such precautions we may remove from the people the undefined dread of an indefinable malaria, rob the routinist of his ever-ready cry of malaria and its corollary, quinine, and feel as safe at the tropics as the poles; as safe on the swamp as on the mountain.

THE NECESSITY OF ABDOMINAL SECTION, AS ILLUSTRATED BY AN UNUSUAL CASE OF OVARIOTOMY.[1]

BY C. R. REED, M.D.,

OF MIDDLEPORT, OHIO.

An ovariotomy to attract the attention of the profession at the present time, must be unique and have some characteristics of peculiar interest. To open the abdominal cavity as an exploratory operation for the purpose of making clear an obscure diagnosis, to remove an ovarian cyst or tumor, a diseased ovary or tubes, to stitch up a wounded viscus, and to remove foreign matter from the peritoneal cavity, is now of every day occurrence, and almost universally admitted to be legitimate surgery. The operation as first performed by McDowell to remove an ovarian cystic tumor when the health and life of the patient was endangered by mechanical pressure on adjacent organs or structures; or that of Battey of removing the ovaries to hasten the menopause, thereby arresting the monthly congestion of the pelvic organs; retarding the growth of tumors, checking hæmorrhages and curing many diseases of the pelvic organs; and the exploratory sections as now advocated by Tait and others are so frequent as to almost cease to challenge attention. Without abdominal incisions and explorations the knowledge of pathological condition is often impossible; the diagnosis is obscure, the indications of treatment are uncertain, the patient does not receive the necessary treatment, the physician's reputation suffers and a post-mortem examination reveals "what might have been." The success attending the operations, the necessity for which are made clear by exploratory incisions of the abdominal walls is such as to deprive ovariotomy and kindred operations of their former terrors; to greatly enlarge the resources of the surgeon and to give new hope to the otherwise doomed patient.

The following case, I think, is a striking example of the necessity of abdominal incision and exploration without which its nature would not have been known, the treatment would have been unsuccessful, the patient's life would have been a sacrifice to ignorance, and the grave would have kept the secret of its true pathology. As an illustration of the utter inefficiency of drugs in similar cases and the imperative necessity of bold and prompt surgical interference, no more striking instance, I believe, is on record. As a case of simple ovariotomy, after the diagnosis was made clear by abdominal section, there is nothing unique or unusual connected with it; but its history, the attending symptoms, the means used for relief give it, we think, an unusual interest. The symptoms during the few days, immediately preceding the operation, were such as had not before come under my observation in cases of ovarian cyst, neither had I seen similar symptoms described in the literature on the subject. The illness of the woman did not lead us to suspect an ovarian cystic tumor or any disease peculiar to her sex. I expected to find an entirely different pathological condition, and but for the exploratory incision, or an autopsy, the cause of the symptoms and the death of the patient, which I believe would have been inevitable, would still have remained a mystery; but the abdominal section at once made the diagnosis clear and the treatment plain.

In the afternoon of August 25, 1885, I was called in consultation with Dr. J. W. Lilly, of Pomeroy, Ohio, to see Mrs. B., married, 34 years of age, the mother of seven children, the younger two being twins, 12 months old. She was then menstruating, having been regular the past three months. Dr. Lilly had called on me in the forenoon, gave me a history of the case, the symptoms and treatment, and requested me to see the patient with him. I gave an opinion then that nothing but laparotomy or an abdominal incision would reveal the true condition and indicate the treatment. Mrs. B. had been in good health up to within a few days prior to this date. The preceding four days she had vomited almost constantly, the last forty-eight hours it being stercoraceous. There was obstinate constipation, indicating obstruction of the bowels, cathartics, injections and local applications had been used without avail.

[1] Read in the Section on Obstetrics, at the Thirty-Seventh Annual Meeting of the American Medical Association.

Her pulse was 120 and weak, extremities cold, body covered with cold perspiration, strength greatly depressed from constant nausea and vomiting; her appearance and general symptoms betokening rapid dissolution. Her mind being clear abdominal section was proposed as a possible means of relief, to which she and her husband readily consented. She was given a ½ grain of morphia sulphas by subcutaneous injection, and Dr. J. H. Hysell was sent for to administer the anæsthetic. She was placed on the operating table, the abdomen laid bare, and washed with carbolized water, when it was discovered that the abdomen was enlarged and irregular which was attributed to fæcal accumulation. She came promptly under the influence of the anæsthetic, the A. C. E. mixture, when an incision was made in the linea alba, midway between umbilicus and pubes, four inches long; a tumor appearing at the opening, the incision was enlarged to eight inches, when it was found to be a cyst of the left ovary with adhesions to the abdominal walls and also to the descending colon. The former were readily broken up, the latter with difficulty, and these were believed to be the cause of the obstruction and constipation. There was general peritonitis, both of that portion lining the cavity and that investing the intestines, the tumor had a mottled appearance indicating congestion. The exploring needle of a hypodermatic syringe was thrust into the tumor, when the canula filled with a chocolate colored fluid. We had not come prepared to deal with an ovarian cyst; we had neither trocar, or hæmostatic forceps, and were warned by the gentleman administering the anæsthetic that in the patient's depressed condition no time could be lost in sending for the necessary instruments, but the operation must be completed with what we had on hand. It is worthy of notice that no vomiting occurred after the incision was made, neither did it occur during convalescence. We determined to remove the tumors. After the adhesions were broken up the tumor was punctured with a scalpel and the fluid was conveyed away as best we could, by thrusting a rubber tube into the opening made by the knife. The pedicle was short and thick; it was transfixed by a double silk ligature, one end hanging from the lower angle of the wound for the purpose of drainage; the abdominal cavity was sponged dry, the incision closed by deep silk sutures and adhesive plaster. The patient rallied well from the anæsthetic; her condition improving as soon as the nausea ceased; her bowels were spontaneously moved on the eighth day; convalescence was interrupted on the tenth day by a severe attack of capillary bronchitis, caused by the injudicious use of ice to lower the temperature. The ligatures on the pedicle came away on the fortieth day, and since that time she has had her usual good health; menstruated after the third month and is now two months *enceinte.*

The minor details of this case have been given in this paper because of its obscurity prior to abdominal section; the unusual symptoms attending it; the treatment prior to operation being based on an obscure diagnosis and therefore futile, and the difficulties of an operation in the absence of what are considered essential instruments. In considering the above case the following questions are suggested:

1. Was the ovarian cyst with its adhesions to the descending colon the cause of the obstruction of the bowels? 2. Would the exploring needle have made the diagnosis clear without abdominal section? 3. With the probability of the patient dying under the operation would it have been better practice to have tapped with the trocar, and deferred the removal of the tumor? 4. As it has been shown by the large experience of Lawson Tait and others that abdominal section and exploration is under aseptic treatment, attended with little or no mortal ty, is it not the imperative duty of the physician to open the abdomen in all cases of doubtful diagnosis where general treatment has failed to relieve the symptoms. 5. In cases of slight enlargement of the abdomen, attended with intestinal obstruction, as in this case, should the physician wait until symptoms of approaching dislocation occur before resorting to abdominal section? And should the operation be performed as a means of diagnosis only, when the symptoms are not urgent?

FRACTURES OF THE FEMUR IN CHILDREN,

Treated by Bryant's Method of Vertical Extension.[1]

BY J. M. BARTON, A.M., M.D.,

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The treatment of fractures of the femur in children has always been attended with great difficulty. The fragments are so short they are not readily grasped by the dressings, and the thigh is usually so comparatively large and soft that the extremities of the fragments are with difficulty maintained in apposition. None but the most firm and secure dressings will be retained, as all the efforts of the sufferer are directed towards their removal. The dressings are soon soiled by the discharges from the bladder and bowels, the frequent renewals interfering with the process of repair. The displacement of the dressings by the patient, causing injurious pressure, and the uncertainty which the surgeon feels concerning the condition of the limb, necessitate frequent examinations, especially when the child shows evidences of discomfort.

The disappointment occasioned by these dressings is perhaps best shown by the fact that in St. Bartholomew's Hospital Reports for 1867, we find that Messrs. Paget and Callender report that they treat many cases of fracture of the thigh in children negatively, without splints, all apparatus being dispensed with, "the child being laid on a firm bed, with the broken limb, after setting it, bent at the hip and knee and laid on its outer side."

The plaster dressing is a valuable one in these fractures, and as usually applied, with short splints around the femur and a long splint reaching from the axilla to below the foot, thoroughly covered in with plaster bandages, and either varnished or covered with oiled

[1] Read in the Section on Surgery, at the Thirty-Seventh Annual Meeting of the American Medical Association.

silk to protect it from the discharges, has often given admirable results.

If dressed immediately after the injury, the subsequent swelling may cause injurious pressure, and if the dressing be made loose enough to allow for the swelling, or be deferred until it has occurred, the fragments will be but poorly supported after the swelling has disappeared. Some of the discharges may get under the dressings without being suspected and cause considerable irritation. From these causes and from uncertainty regarding the condition of the limb, it not unfrequently happens that the dressing has to be removed once or more during the treatment.

As it is usual to give ether in applying these dressings, and as the surgeon scarcely cares to delegate it to an assistant, its frequent application is a great objection, especially in hospital practice. On removing these dressings when the treatment has terminated I have often felt considerable uncertainty as to what kind of a limb would appear.

A method of treating fractures of the femur in children by vertical extension is described and claimed as original by Bryant in his "Practice of Surgery," published in 1873, and also in the later editions. This method, though possessing many advantages, is unnoticed by the surgical text-books, and but few surgeons among those of whom I have inquired have had any experience with it. Under these circumstances I feel warranted in bringing this subject before this Association, and reporting five cases that I have treated by this method. Bryant flexes the limbs to a right angle with the pelvis, fixes them by some light splint, and then they are "hoisted upward and fastened to some cradle, hook or bar above the bed." This has been slightly modified, substituting counterpoise weights for the simple fastening.

Case 1.—Mary F., aged 2½ years, was admitted to the Jefferson College Hospital July 6, 1884, with a fracture about the middle of the left femur. I applied the plaster dressing, which had served my purpose well in previous cases, but was obliged on the second day to remove it, and I substituted this method. The usual adhesive plaster, carried well above the knee, the same as is used for making extension in adults in the ordinary method of treatment, was applied to each limb, to the sound as well as to the injured one. After the plaster had become firm, a light wooden frame, extending across the bed and about four feet above it, was placed in position, such a frame as is usually used for swinging fracture boxes, etc., from, consisting simply of two uprights, one on each side of the bed, and a light bar connecting them. In the lower edge of the transverse bar four iron pulley wheels had been fastened, two about the middle, a few inches apart, and one at each end close to the "upright." The limbs of the child were elevated to a right angle with the rest of the body, the cord from one of the adhesive plasters on one of the limbs was carried through one of the middle pulleys and then through the pulley at the end of the bar; here the weight was attached. The cord from the other leg was then carried in a similar manner to the other side. The heaviest weight was attached to the injured limb, and only enough to the sound leg to keep it fairly elevated. The fracture came immediately into good position, but for greater safety a few short and narrow splints were applied around the seat of injury, supported by a light bandage. The child was comfortable at once and continued so.

The apparatus was removed about the twentieth day, as firm union had occurred, the child was kept in bed a few days longer, and then permitted to creep and walk around the ward. She was discharged thirty-five days after admission with a perfect leg, in which neither shortening nor deformity were detected.

Case 2.—Nils Christian Thompson, aged 4 years, injured on shipboard coming from Denmark, was admitted to the Jefferson College Hospital on July 21, 1884, with a fracture of the femur at the junction of the upper and middle third, a frequent seat of fracture in children, and as the upper fragment has as strong, if not a stronger tendency to be displaced forward than in adults, this method of treatment is particularly well adapted for remedying this deformity. This patient was placed in a precisely similar apparatus, in which he was kept for twenty-five days. The boy was discharged well, with less than one-half inch of shortening, August 10, and with the limb in perfect position.

Case 3.—Gustav S., aged 3 years, was admitted on February 12, 1885, to the German Hospital in Philadelphia. His fracture was also at the junction of the middle and the upper third. After an unsatisfactory trial of another method I placed him, a few days after admission, in an apparatus similar to those before described. He was discharged on April 23, having been running around the wards for several weeks under treatment for another affection. Dr. Rehfuss, the resident physician, who examined him before he left, tells me that the limb was in perfect position, without perceptible shortening, and that he had full and free use of it.

Case 4.—John W. MacA., æt. 6 years, was admitted to the German Hospital May 9, 1885, with a fracture of the upper part of the right femur. He was treated in the same manner, and was discharged July 6 with a perfect result.

Case 5.—Benj. H., aged 2 years 3 months, a private patient, fractured his left femur about its middle on November 2, 1885. He was placed in the same form of apparatus, and made a very satisfactory recovery with good union in about three weeks.

None of these children seemed to suffer the slightest inconvenience or annoyance from their position; they amused themselves by playing with their toys, appeared quite happy and entirely free from pain. As the limb cannot get out of position while full extension is maintained, and is so readily examined, the surgeon need feel no anxiety regarding its condition.

It is rarely necessary to remove the light bandage and splints around the femur, and when necessary can be done without assistance, and without paining or frightening the patient or displacing the fragments. It is quite as easy to measure the length in this position as in the treatment by horizontal extension in the adult. The swelling is usually but slight, but if

great does not interfere with the treatment. I have never seen, while using this method, those huge masses of redundant callus which are not infrequently found in the fractures of restless children.

The child is readily kept clean, a folded sheet placed under the buttocks to receive the discharges, and removed when soiled, is all that is necessary. The nurse grasps the child by the feet, and gently raises it some inches from the bed, and as it is nearly counterpoised, it can be kept in this position with but little effort on her part. while the hips and back are washed and a clean sheet put in position. In winter some of the bedclothes are given a turn around the limbs and hang suspended by the extension cords.

The amount of weight used for extension depends, of course, on the size of the child, but about the same amount as would be used in horizontal extension will be found quite enough.

DR. D. W. GRAHAM, of Chicago, had followed the method described by Bryant, which was the same in practice, but a little more simple in its application, had found it a comfort to the patient and successful in its results, but he did not see the need for using any coaptation splint.

DR. I. N. QUIMBY, of New Jersey, said he could not see any reason why it should be preferred to the horizontal extension and counter-extension heretofore used.

DR. LINK, of Terre Haute, said that for many years he had not used any extension or counter-extension in treatment of fractures of the femur, nor had he found it necessary to use coaptation splints. He simply treated them by flexing the thigh upon the body and the leg upon the thigh, everting the limb and putting it in a position of muscular relaxation on a bed of bran.

DR. GRIFFITH, of Kansas City, expressed the belief that one great advantage in the vertical suspension of the limb in treatment of fractures of the femur, was to be found in the relaxation of the psoas magnus and iliacus muscles.

A CASE OF PLACENTA PRÆVIA.

BY H. VON SWERINGEN, A.M., M.D.,
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Believing it to be the duty of the physician to report his failures as well as his successes, I wish to place on record the following case of placenta prævia, making the fifth that has occurred in my practice, and the first and only one that has resulted fatally.

On Sunday, September 26, 1886, about 1 P.M., I was called to see Mrs. J. L., who, as the messenger (the husband) stated, was about to be confined with her tenth child, but had not during the entire period of her pregnancy, felt right or natural, or as she felt during her previous pregnancies, and was therefore in constant fear that all was not well with her. She seemed to have a premonition that she would not live through her lying-in, having spoken of it frequently to her neighbors, friends and husband. Her mother and sister were buried with babes in their arms, each having died of hæmorrhage from placenta prævia, a fact which no doubt increased her fear, and which would seem to indicate if not a predisposition to that condition, at least a tendency to bleed, or a hæmorrhagic diathesis.

I learned that she had quite a number of spells of flowing during the last three months of her term, and, in fact, an occasional "showing" prior to this period, even from the very commencement of her pregnancy. A few days prior to my visit her family physician was called in, and after making a digital examination, informed the husband that he had better get some other doctor to attend her accouchement, inasmuch as it would not be safe for him to do so because of several cases of blood-poisoning he then had under treatment.

When I saw the patient for the first time she was pale, anæmic, had light hair and blue eyes, a blonde in complexion, of about 40 years of age. She was complaining of slight pains in her back and an occasional flowing. An immediate digital examination confirmed the diagnosis already formed and very naturally suggested by the history of the case, revealing a more rigid os than would naturally be expected, dilated to the size of about a nickel; forcing my index finger through it, its extremity came in contact with a boggy substance, not unlike a firm clot of blood, which, at first I thought it might be, but concluded not to disturb it. Pushing my finger as high as I could to the right of this substance, I succeeded in barely touching some part of the head, which seemed to be gradually descending from the right iliac region. I gave her a full opiate, requested her to remain quiet, and, in the event of any more hæmorrhage occurring, to summon me.

On the following Tuesday afternoon I was again called, simply to see how the case was progressing, and found her in about the same condition as when I left her; her pains amounted to nothing, not even sufficient for dilating purposes. The os was a little more enlarged, probably to the size of a quarter of a dollar, and slightly softer; and the head was so high up that I failed to touch it. I administered oxytocics with opiates and promised to be back and remain with her during the night, assuring her and the friends that the very moment the mouth of her womb was large enough to admit the introduction of my hand I should endeavor to get the babe, for upon its speedy delivery depended her safety. My intention was to apply the long forceps and bring the child (which was now dead) down so that its head or body would cover the site of hæmorrhage, and leave it there for a time as a tampon, until her pains would become strong enough to finish the delivery and prevent post-partum bleeding. I left her bedside and returned directly after tea to remain with her during the night. Throughout the entire night her condition remained about the same, her pains amounting to nothing, no hæmorrhage, however, and the os but very little increased in size. It was about 8 o'clock when I left her on Wednesday morning. Throughout the day I visited her at intervals of an hour or two.

At about 6:30 in the evening I again visited her, and had barely reached her bedside when a very copious hæmorrhage took place. I immediately

tamponed her, using several silk handkerchiefs for the purpose. I now concluded to wait until about midnight before resorting to more heroic measures, feeling hopeful that the tampon itself would not only prevent further bleeding but aid in softening and dilating the os uteri.

Every little while she announced that she was flowing, but an examination would as often prove the contrary; she simply imagined she was. She bore the slightest examination badly, seeming to be supersensitive to the mildest manipulation, and I therefore decided to get her in position and under the influence of chloroform when I removed the tampon, and directly after the removal attempt the delivery of the child. In the meantime all the necessary preparations were made, the attendants instructed, and the husband informed that if he desired the attendance of one or more physicians he had better notify them to come at once. He replied that he was perfectly satisfied to trust the life of his wife in my hands. Had I not been successful in the treatment of four similar cases, however, I should have insisted upon him calling in one or more physicians. With confidence born of previous success, I therefore trusted in my own ability to conduct the delivery safely. The lesson which the sequel has taught me will not be soon forgotten.

About 1 A. M., she called me anxiously, saying that she was now positive that she was flowing badly, which announcement proved to be only too true, although very little if any impression had yet been made upon her pulse. After getting her in the proper position, I administered chloroform, removed the tampon, and found that by a little effort I could introduce my hand; this done, I discovered that at least half of the placenta was detached and presenting from the posterior lower segment of the uterus, the cord was pulseless, the head was still high up in the iliac region, and hæmorrhage was going on. Abandoning the thought of making use of the forceps, I reached up and brought down one foot; reached after the other, and *while* bringing it down, before the version was effected or completed, a perfect torrent of blood burst forth and all was over; not a pulse-beat, not a heart throb, not a sigh, not a groan—she was dead; dead before the child was fully delivered, and yet not three minutes was required in the operation of version and extraction. My clothes were all saturated with blood, of which a large pool lay upon the oil-cloth upon which I was kneeling during the manipulation. Recovering somewhat from the shock so sudden and yet not wholly unexpected death occasioned, I sent for a physician; desiring that some professional colleague might at least see the situation before it was in any wise changed by those in attendance. In a few minutes Dr. Howard McCullough came into the room, and took in the situation at a glance.

The only difference I have observed in this case from the previous four successful cases, is the fact that in the latter there were no pains of any account whatever, and all the blood in her body seemed to be in her uterus and placenta; also the fact that there was a larger area of surface of the placenta detached, possibly.

MEDICAL PROGRESS.

HEALED SHOT WOUND OF THE SPINE.—At the xvth Congress of German Surgeons, PROF. CZERNY, of Heidelberg, reported the case of a young woman, æt. 22, who, while at her toilet, was shot in the back by her jealous husband, May 6, 1873. The ball entered one-half inch to the left of the last dorsal spinous process. She sank with a cry. The man shot himself dead. I was called soon and found paraplegia, both legs paralyzed to the pelvis, and sensory paralysis on the right to the inguinal fold, on the left of the knee. Reflex irritability was entirely preserved, and all the paralyzed muscles reacted promptly to weak faradic currents. No twitching or contracture in the said muscles. Bladder and rectum were completely paralyzed. Catheterization for three days when the bladder emptied involuntarily on getting full. Pulse and temperature normal, mind always clear. The course of the ball and the complete immediate paraplegia pointed to the conclusion that the cord must have been perforated by the ball. Presumably the bullet had lodged in a vertebra as no symptom of injury to the abdominal organs was noticeable. I therefore did not consider myself justified in sounding, washed the wound superficially with carbolic, covered it with carbolized cotton, and thus the wound healed in a few days. The patient could soon sit propped up in bed, and was placed in a reclining chair after fourteen days. From the beginning of June she rode about several hours daily in a roller chair and continued this, weather permitting, until late in the fall; meanwhile her appetite continued excellent, general condition good and her appearance notably fresh and bright. In the early weeks the paralyzed muscles were faradized daily, yet contractility gradually disappeared. This so excited the patient that further faradization had to be dispensed with. The legs, which so far had remained lax, became stiff and inflexible at the end of summer, and began to atrophy with remarkable rapidity. In November decubitus developed, starting from urine excoriation, and spread rapidly over the sacrum. From this on there was fever, and the fatal end (December 4, 1873) was hastened by an erysipelas spreading from the wound over the whole back and thigh.

The ball was found healed in between the last dorsal and first lumbar vertebræ, to the right of the middle line. The spinal cord was almost completely severed, that below being somewhat thickened, whilst upwards to the second dorsal vertebra it was in a state of suppurative softening. The dura mater presented a scar at front and back, where it was also adherent to the bone. Pulmonary atelectasis of moderate degree, somewhat fatty liver, chronic cystitis.

The objection may be made that a suppuratively softened cord is not a healed cord. We know how difficult it is to distinguish yellow softening of the brain from a fresh abscess, yet to me the preparation makes more the impression of an acute ascending myelitis than of an abscedizing. Then it must be noted that the patient rode about several months in

subjectively good condition, and that the bullet was completely encapsulated.

Since before the time of antiseptics a severe shot wound of the spine has healed through the avoidance of probing and by careful washing out, a similar result ought now with like care to be all the easier achievable.—*Annals of Surgery*, November, 1886.

Diagnosis of Infantile Diseases.—In a recent number of *L'Union Médicale du Canada*, Dr. Bradley gives the following summary of points on the diagnosis of disease in infants:

1. Congestion of the cheeks, excepting in cases of cachexia and chronic disease, indicates an inflammation or a febrile condition.

2. Congestion of the face, ears, and forehead of short duration, strabismus, with febrile reaction. oscillation of the iris, irregularity of the pupil, with falling of the upper lids, indicates a cerebral affection.

3. A marked degree of emaciation, which progresses gradually, indicates some sub-acute or chronic affection of a grave character.

4. Bulbar hypertrophy of the fingers and curving of the nails are signs of interference in the normal functions of the circulatory apparatus.

5. Hypertrophy of the spongy portions of the bones indicates rachitis.

6. The presence between the eyelids of a thick and purulent secretion from the Meibomian glands may indicate great prostration of the general powers.

7. Passive congestion of the conjunctival vessels indicates approaching death.

8. Long-continued lividity, as well as lividity produced by emotion and excitement, the respiration continuing normal, are indices of a fault in the formation of the heart or the great vessels.

9. A temporary lividity indicates the existence of a grave acute disease, especially of the respiratory organs.

10. The absence of tears in children four months old or more suggests a form of disease which will usually be fatal.

11. Piercing and acute cries indicate a severe cerebro-spinal trouble.

12. Irregular muscular movements, which are partly under control of the will when patient is awake, indicate the existence of chorea.

13. Contraction of the eye-brows, together with a turning of the head and eyes to avoid the light. is a sign of cephalalgia.

14. When the child holds his hand upon his head, or strives to rest the head upon the bosom of his mother or nurse, he may be suffering from ear disease.

15. When the fingers are carried to the mouth, and there is, besides, great agitation present, there is probably some abnormal condition of the larynx.

16. When the child turns his head constantly from one side to the other, there is a suggestion of some obstruction of the larynx.

17. A hoarse and indistinct voice is suggestive of laryngitis.

18. A feeble and plaintive voice indicates trouble in the abdominal organs.

19. A slow and intermittent respiration, accompanied with sighs, suggests the presence of cerebral disease.

20. If the respiration be intermittent, but accelerated, there is capillary bronchitis.

21. If it be superficial and accelerated, there is some inflammatory trouble of the larynx and trachea.

22. A strong and sonorous cough suggests spasmodic croup.

23. A hoarse and rough cough is an indication of true croup.

24. When the cough is clear and distinct, bronchitis is suggested.

25. When the cough is suppressed and painful, it points toward pneumonia and pleurisy.

26. A convulsive cough indicates whooping-cough.

27. A dry and painless cough is sometimes noticed in the course of typhoid and intermittent fever, in difficult dentition, or where worms are present.—*London Medical Record*, Oct. 15, 1886.

Excision of the Hip in Pulmonary Tuberculosis.—H. Bresson reports the following case which bears on the question of surgical intervention in tuberculous subjects. E. G., æt. 9 years, came under treatment May 16, 1885, for hip disease on the left side. No precedent tuberculous history, either personal or family. The beginning of the disease was obscure: for two months there was pain and lameness, and the child was kept in bed for four months. She then went about for six months, until the pain and lameness returned. The limb now shortened and rotated inwards, and soon intense pain at the knee forced the child to go back to bed. The cautery was used without result, and the condition became worse. She was then kept in immovable apparatus for three and a half months, and was afterwards free for six months, her condition having improved. At this time she already coughed a great deal; was pale, thin, without appetite, and with persistent diarrhœa, no albumen in the urine, consolidation at the apices of the lungs, moist râles, etc. The following month an abscess appeared at the upper and outer part of the thigh. At the commencement of July, aggravation of the symptoms suddenly took place, with sub acute inflammation of the joint, and strong fever was observed on the 21st. The purulent collection was opened under strict antiseptic precautions. Throughout the month of August the temperature oscillated between 38° and 40° Although the tuberculous condition of the lungs caused a long hesitation, at the urgent request of the family, and in consequence of the daily aggravation of the child's condition from the copious suppuration, Dr. Cazin determined to excise the hip, which was done on August 30. The temperature fell from 40.2° and oscillated between 37° and 38° for a fortnight, when it returned to the normal. The wound, which was scraped at the bottom by Volkmann's spoon, united by first intention, and presented nothing untoward. Six weeks afterward a silicated apparatus was applied and the child began to walk with crutches. Since two months she has quitted the infirmary, her condition becoming better every day, appetite returned, sweats and diarrhœa disappeared

putting on flesh, and the stethoscopic signs considerably improved. On March 1 there was scarcely any appreciable dulness at the right apex, and only at the sub-spinous fossa of the same side can a little crepitation be heard on coughing. The child wears no local apparatus, can walk without crutches, and the limb is only shortened 1½ centimetres.

Her condition at the time of operation was almost hopeless; six months after her general health was as satisfactory as possible. The result, no doubt, depends largely on the strict antiseptic precautions; and in freeing the patient from the constant loss by suppuration, her system was put in a better position to resist the pulmonary lesion.—*Le Progrès Méd.*, Aug. 14, 1886.—*Annals of Surgery*, Nov., 1886.

POSOLOGY AND USE OF SOME NEW REMEDIES.—*Osmic acid:* Best administered in pill form (made up with Armenian bole). The dose is $\frac{1}{60}$ grain, which may be repeated several times a day. Used in epilepsy and sciatica. *Agaricine:* Best administered in combination with Dover's powder. Dose $\frac{1}{12}$ to ⅙ grain. Used for night-sweats. *Aloin:* From ⅓ of a grain to 3½ grains, in pill form. *Antipyrine:* Dose from 75 to 90 grains, divided into three portions, one of which is to be taken every hour. *Bismuth salicylate:* Dose from 5 to 7 grains, in pill form. In typhoid this dose may be doubled and repeated every hour, up to ten or twelve times. *Canabinone:* From ⅔ to 1½ grain. Best administered mixed with finely ground roasted coffee. Sedative and hypnotic. *Colocynthin:* Used subcutaneously. The dose is from ⅙ to ½ grain. It may also be administered in pill form, by the mouth, the requisite dose being from ⅓ to 1 grain. *Convallaramine:* Internally, in pill form. The dose is from ¾ to 1¼ grain. *Euonymin:* Best given in pill form, combined with extract of belladonna or hyoscyamus. The dose is from 3 to 10 grains. *Nitroglycerin* is best given in alcoholic solution. The dose is from $\frac{1}{150}$ to $\frac{1}{60}$ grain, repeated several times a day. Rossbach prefers ether as a solvent. His formula for its use is as follows: Dissolve 1½ grain of nitroglycerin in sufficient ether, and add the solution to a mixture consisting of 2 ounces of powdered chocolate and 1 ounce of powdered gum-arabic. Mix very thoroughly and divide into 200 pastilles. Each pastille will thus contain $\frac{1}{333}$ grain of nitroglycerin. Used in angina pectoris, and as a diuretic. *Picrotoxine:* In aqueous solution. Dose from ⅛ to ⅙ grain. Used in epilepsy. *Sulphate of thalline* may be given dissolved in wine or water (with some corrigerant). The dose is from 4 to 8 grains, or 1 grain every hour. The above is taken in part from the *Rundschau Leitmeritz.*—*Medical Record*, Oct. 30, 1886.

NITRO-GLYCERINE.—DR. L. V. HOLST reports in a St. Petersburg journal a number of observations on the action of nitro-glycerine on heart diseases. He considers that it is especially useful where little or no serious organic change in the heart muscle or valves has taken place, and where the affection is mainly due to a debilitated condition of the organ. In angina pectoris Dr. von Holst has found nitro-glycerine very useful; in one case, indeed, it produced a permanent cure. He recommends recourse to this drug instead of to camphor and musk in cases where great cardiac weakness threatens immediate danger to life. He considers that the diuretic action is not due to any direct stimulation of the kidneys, but is a consequence of the regulation of the heart's action. He finds that dropsy, if due to heart weakness diminishes under the use of nitro-glycerine, but that the renal form is uninfluenced by it. With regard to the dose, the author advises that small quantities should be given at first, and increased gradually according to the effect on the particular case. The preparation he uses is a 1 per cent. alcoholic solution, and of this he gives from 1 to 6 drops three times a day.—*Lancet*, Oct. 9, 1886.

ADMINISTRATION OF TINCTURE OF IRON.—*Science* speaks of recent experiments with the common tonic, the tincture of the chloride of iron, diluted with water, showing that when thus diluted it acts very injuriously upon the teeth. This is explained by the fact that the peroxide formed in the alcoholic solution is precipitated, when water is present, in such a flocculent form as not to adhere to the surface of the teeth, and consequently, the free hydrochloric acid can act upon the lime salts of the teeth without let or hindrance. When the tincture is given without water, no action takes place; the peroxide which is then formed is of the anhydrous form, and so compact as to adhere to the teeth, and protect them from the action of the acid. These experiments have resulted in determining that there are three menstrua which can be used as diluents of this tincture, which will produce no injurious effects upon the teeth: they are alcohol in some form, Vichy water, and a simple syrup.—*Boston Med. and Surg. Jour.*, Nov. 11, 1886.

ANTIPYRIN IN RHEUMATISM.—DR. JOLEBIEWSKI, while attached to the military forces in Dresden, has observed the effect of antipyrin in seventy cases of rheumatism. He places its action on an equal with acid salicylic. The action was in general very prompt. The average duration of the disease in the above recorded cases was three to four days. He thinks it best to begin with large doses—60 grains night and morning. This dosage was not strictly adhered to when the patients were very weak and thin, or when there were complications with other diseases—a much smaller amount then being given.

Antipyrin proved as much a specific as salicylic acid in chronic as well as acute cases. There was no case of collapse. In only two of the seventy was there urticaria. The amount of perspiration varied extremely with different individuals. Nausea was quite often observed, especially when taken near meal times.—*Va. Med. Monthly.*—*Medical Age*, Nov. 10. 1886.

A CURE FOR NEURALGIA.—DR. HENRY G. DAVIS gives the following prescription for pure neuralgia:

Tr. cinchon. comp.	℥	ij
Tr. nucis vom.	ʒ	ss
Morphiæ sulph.	gr.	ij ♏

S.—℥j every three hours.

THE
Journal of the American Medical Association.
PUBLISHED WEEKLY.

THE EDITOR OF THIS JOURNAL would be glad to receive any items of general interest in regard to local events, or matters that it is desirable to call to the attention of the profession. Letters written for publication or containing items of information should be accompanied by the writer's full name and address, although not necessarily to be published. All communications in regard to editorial work should be addressed to the Editor.

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Address
JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION,
No. 65 RANDOLPH STREET,
CHICAGO, ILLINOIS.

SATURDAY, DECEMBER 4, 1886.

"HOUSE PLANTS AS SANITARY AGENTS."

A very interesting book with this title has recently appeared, from the pen of DR. J. M. ANDERS, of Philadelphia. And we may readily admit with the author, that if it be excusable for a writer to offer a new book on a subject already treated of by many others, we may certainly excuse one who presents a branch of scientific literature which, in the form of a book, has not hitherto found an exponent. In fact, when the subject is well handled, and presented in an interesting manner, as in this book, no apology need be offered by the author for its appearance.

The first duty of a writer on this subject would necessarily be that of dispelling the old, and somewhat popular, superstition that plants in sleeping rooms are particularly unwholesome. The superstition was based upon the knowledge of the respiratory function of plants, which consists in abstracting oxygen from and returning carbonic dioxide to the atmosphere. Of course, if the exercise of this function can have any perceptible effect upon the air breathed the result must be an unwholesome atmosphere. But one has only to study the investigations of Von Pettenkofer to see that all objections on this ground to the cultivation of plants in sleeping rooms are invalid. One of the most powerful arguments to the contrary is the fact that no healthier class of men can be found than green-house workmen, even when they work at night, and sleep in the green-house. Claud Bernard pointed out some remarkable resemblances between the physiological processes of the animal and vegetable kingdoms, and his lectures before the Park Museum of Natural History have had the effect of causing a change of scientific opinion on this subject. This view, first put forward by Mohl, that the respiratory phenomenon of plants takes the same course as in animals, so far from being antagonistic to it, has been confirmed by Coriander, and is now adopted by leading vegetable physiologists. After a series of very careful experiments Von Pettenkofer concluded that the amount of carbonic dioxide in the Winter Garden in Munich could not be reckoned as telling for or against the hygienic value of vegetation in an enclosed space; and that, so far from giving out more carbonic dioxide at night, and thus rendering the air harmful, plants really give out less of this gas than during the daytime. He also found that the amount of oxygen in the Winter Garden was rather higher than in the open air.

The absorption of moisture by plants is a matter concerning which there has been a great deal of dispute; but the most careful experiments tend to show that while plants do absorb moisture, they do so only when circumstances of absorption by the roots are unfavorable; and hence that growing, including potted, plants absorb no aqueous vapor from the atmosphere, when well watered and supplied with proper soil. On the other hand, under favorable conditions of root-moisture and soil, plants actually exhale watery vapor from all green portions. This has been shown by vegetable physiologists, and more recently and exactly by Dr. Anders, in his "Transpiration of Plants." "In clear weather, the evaporation by night as compared to that which takes place in the day appears to be about in the ratio of 1 to 5. In some cases no loss occurred on dewy or cloudy nights. Under ordinary circumstances, transpiration at night was about the same in-doors as in the open air. The true rate of transpiration during the day showed a very different relation, giving a ratio of 2 to 1 in favor of the open air." The average rate of transpiration may be stated as about one ounce and a quarter *per diem*, of twelve hours, for every square foot of leaf surface. Necessarily, the rate of transpiration varies according to the nature of the leaf. Garreau showed that there is a correspondence between the amount of water exhaled by a plant and the number of stomata in its leaves. It is to be further noted, that while heat causes evaporation from dead organic matters, light is the great agent in transpiration in living plants. Transpiration must of course have an effect upon the dew-point; and Dr. Anders found that "the effects of twenty-four square feet of leaf-surface on the air of a room ten feet long, five and a half feet wide, and eight feet high, would be to increase sufficiently the humidity to raise the dew-point six degrees

Fahrenheit—higher than it would be if there were no plants in the room." "We may justly conclude that during the summer months, when the windows are thrown widely open and the doors kept ajar, the influence of transpiration is quite inconsiderable; on the other hand, when the interchange of air is not too rapid, a sufficient number of growing plants, well watered, have the effect (if the air be not already saturated) of increasing the moisture to any desirable extent. Assuming, furthermore, that transpiration is to a much greater extent controlled by the action of the sun's rays than by the temperature range or the relative humidity of the atmosphere, then this process of nature must in clear weather, including the cold season, be more uniformly operated than evaporation from water or other sources under similar conditions."

This is a point of very great interest to the sanitarian. The temperature is affected to some degree by the amount of water in the air; moistening of the air has the effect of lowering the temperature, and thus changes in the degree of saturation cause variations in the temperature. Applying these facts to the air of our dwellings, the advantage of plant moisture would be to secure a more uniform temperature of the air of our rooms. But what is the quantity of moisture essential to good health? At the ordinary temperature of rooms, from 65° to 70° Fah., "the degree of humidity most conducive to health as well as most agreeable to the average individual is about seventy-five per cent. of saturation." But this proportion is, we may say, never found in our dwellings, It must here be remembered that the relative humidity for the same temperature may be very variable. Now, if in an atmosphere of the proper temperature and with the proper degree of humidity the body-evaporation be just what it should be, it is easily seen that much less moisture will increase the rate of exhalation beyond the health limit, the bodily temperature being lowered at the same time. Again, all artificially heated atmospheres contain far too little moisture, and exhibit marked variations; and these two factors cause excessive and variable evaporation. It may be safely said that most of the colds and inflammations of the upper air-passages are produced by improperly moistened, heated, and ventilated rooms. The most significant bearing of the question of plants in rooms is their application to apartments heated by hot-air furnaces. Dr. Anders calculates that half a dozen plants, each with a leaf-surface of six square feet, would be in a room twelve feet long and ten feet wide, with a ceiling about twelve feet high, ample to bring the humidity of a chamber heated by dry air to that of the external air.

Besides the exhalation of moisture plants possess the important hygienic property of generating ozone. This property is possessed by flowering plants in general, and by odorous flowers particularly; foliage plants do not generate ozone, except scented foliage. "It is highly probable that the function demands the influence of the sun's rays, or at least good diffused light. . . . From the facts brought out by the results of scientific research, it is clearly seen that the cultivation of blooming as well as non-blooming plants giving off perfumes in marshy localities and all other places in which the air is greatly polluted by the products of decaying organic material cannot be, on account of the great energy which ozone manifests to destroy these injurious elements, too strongly recommended. It is equally clear and not less important to observe how decidedly beneficial scented foliage and flowering plants must become in the presence of all public gatherings. . . . they would be of special value in the theatre, in the crowded lecture-hall, the church." Again ozone is not detectable in living-rooms, and when it is remembered that plants generate ozone in-doors in clear weather it is easily seen that here is another way in which they may be of sanitary value; though we may not be able to assert, with the author, that the organic exhalations from the skin and lungs of the patient would be attacked and annihilated by the ozone generated by the plants.

From what has been said it is obvious that there is a place in the sick-room for flowers and for flowering plants. Especially in cold weather, when the outer air cannot be admitted so freely, the dry air of the artificially heated rooms may be rendered humid by plants; and the value of a moist atmosphere to many cases of disease need not be more than mentioned. Further than this, the normal and æsthetic influence of plants and flowers must be taken into consideration, as this influence is of very great value. One has only to visit the magnificent *Solarium* of the New York Hospital to see that convalescents value growing plants and sunlight. The æsthetic influence of plants is especially to be seen in certain functional nervous disorders. The observations of Eyseline show that ozone has sedative and hypnotic properties, which still further widens the application of those plants and flowers which generate it. It may be objected and admitted that much of this influence would be the result of "faith" or imagination; but what signifies it whether a patient be cured by medicine or faith, so long as he is cured? Dr. Anders gives some

striking information regarding the influence of plant-cultivation on phthisis and the phthisical diathesis; and it will be remembered that an interesting case was recorded by Dr. Ely McClellan, in the *Philadelphia Medical Times*, February 26, 1881, which confirms the views expressed by Dr. Anders.

THE RATIO OF PHYSICIANS TO POPULATION.

A writer on the *Causes of Low Fees* in the November number of the *Provincial Medical Journal*, England, gives the ratio of medical men to the population in different countries as follows (quoting from *La Gazetta degli Ospitali*): "France, 2.91 per 10,000; Germany, 3.1 per 10,000; Austria, 3.41 per 10,000; England, 6 per 10,000; Hungary, 6 per 10,000; Italy, 6.10 per 10,000; Switzerland, 7.06 per 10,000; United States, 13.24 per 10,000."

Substantially the same statistical comparisons have been published many times both in this country and in Europe. It will be seen that the ratio of the profession to the population is four times greater in this country than in France, Germany and Austria, and more than twice as great as in Hungary, Italy, Switzerland and Great Britain. Without further explanation, the great apparent excess of physicians in the United States, must cause the inference abroad that the profession here is so overcrowded as to place a large proportion of its members in a state of starvation. And yet it will require but a moderate amount of investigation to show that the members of the medical profession as a whole, in this country, are better paid, and are enjoying more of the substantial comforts of life, than in any one of the countries of Europe. There is doubtless an important error in the comparison of the number of actual members of the profession in this country, with the number in other countries, owing to the different modes of enumeration. The statistics of the profession in this country are derived solely from the general decennial census of the entire population, and depend for correctness entirely upon the verbal statements of individuals to the parties making the enumeration from house to house, and is likely to include all who choose to assume the title of Doctor. The ratio for the United States given above is evidently based on the returns of the census of 1880. On the other hand, in Great Britain, and we think in all the other European countries, the number of medical men taken for the comparison is limited to those legally *registered* after having completed a prescribed course of medical studies and numerous examinations at prescribed intervals, and received a license or degree from a University or Royal College. Thus the ratio of six physicians to ten thousand of the population in Great Britain, is fairly deduced from the 25,998 regularly licensed physicians on the "Register" for 1886, and 36,000,000 as the total population of the British Islands. This excludes all irregular and "unregistered" persons who are actually engaged in practice, especially for the poorer classes, and of whom there are many thousand distributed throughout all parts of the Kingdom. By the laboring classes they are employed at low fees, and are freely called "Doctors." While passing a short time in England during the past summer we were assured by some of the best informed men in the profession there, that the number of apothecaries, chemists, and other irregular, unregistered parties engaged more or less in prescribing for the sick in their country was not less than 15,000 or 20,000. Their statements are strongly corroborated not only by the articles concerning the causes of low fees in the recent number of the *Provincial Journal*, but by the frequent references to the number of illegal practitioners in both the London *Lancet* and the *British Medical Journal*, by writers discussing the election of new members of the General Medical Council, etc.

Another circumstance exerting an important influence on the relations of the profession to the population, is the fact that in Great Britain, and indeed throughout the countries of Europe, a much greater proportion of the population belong to the class of indigents who pay no doctor's fees. The aggregate number provided for in the workhouses, infirmaries, hospitals, etc., supported by the Governments, is very great, while in this country the number similarly situated is relatively small. If the number of medical practitioners in each country was compared only with the population capable of paying some fees for medical services, the difference between the ratio in this and other countries would be far less.

SUICIDAL MANIA IN TYPHOID.

The occurrence of suicidal tendencies in the occasional mania of the early stage of typhoid fever is rare, and it may be interesting to know that it was present in the case of the celebrated jockey, the late Frederick Archer. Mr. J. R. Wright, his medical attendant, states that when he was first taken ill it was hoped that the illness was only temporary, and due to a chill; but two days afterwards the enteric condition was recognized, and from his previous exposures and privations there was a prospect of a long and severe attack. There was at first great mental

depression and very high fever, says the *British Medical Journal*, but, under the careful treatment and watching he received, material improvement took place, and the case seemed to be going on better than could have been hoped, when, on November 8, he was seized with one of those suicidal influences which are occasionally noted during the first week or ten days of typhoid fever. This disease is so associated in the minds, not only of the public but of the medical profession, with prostration and low muttering delirium, that the fact that acute delirium with delusions, generally of a suicidal character, sometimes comes on during the early stage, will be new to many. The delirium, indeed, may be so violent as to be mistaken for acute mania, and consultations have even been held, in some cases, to decide whether the patient should be committed to a lunatic asylum. M. Mottet has related a case where this mistake was actually made, and the patient admitted to the lunatic asylum before the true nature of his malady was recognized. Only one consolation can be offered to Mr. Archer's many friends and admirers, and that is, that these maniacal symptoms are of extremely grave moment, and that the majority of patients who present these symptoms succumb to the disease. It is improbable that, under the circumstances, the termination of the case could have been favorable.

CARE IN REPORTING CASES.—A correspondent, alluding to some cases recently published in THE JOURNAL, makes the following important suggestion:

"Articles produced in medical journals are very potent either for good or evil, especially in cases of emergency. Professional men should bear this fact in mind, and confine themselves to true statements in the description, treatment and result of cases. Whether from a desire to draw comments from others, experienced, thereby receiving valuable instructions, or from a thirst for notoriety by striking awe into the readers with the details of some wonderfully complicated case, the bold and original treatment and happy results, I know not; be that as it may, cases are frequently overdrawn and misrepresented with dire effects."

SURGEON-GENERAL OF THE U. S. ARMY.—LIEUTENANT-COLONEL JOHN MOORE, until recently Assistant Medical Purveyor, has been appointed by the President, Surgeon-General of the U. S. Army in place of Brigadier-General Robert Murray, retired on account of age. The new appointee is a native of Indiana, entered the Medical Corps in 1853, and is consequently one of the oldest in the service. He has been constantly in active service and has made an honorable record for faithfulness and ability throughout, and brings to his new position all the experience, ability, and high character that the office requires.

DIED, November 20, 1886, DR. JOSEPH A. LANDIS, at his residence in Hollidaysburg, Pa., in the 82d year of his age. He was a physician of high standing, and greatly respected by all classes of the community. One of the founders of the Medical Society of the county in which he lived, he was also a member of the State Society and of the American Medical Association.

DIED, November 30, 1886, DR. JOHN P. GRAY, of Utica, N. Y., for many years Superintendent of the New York State Asylum for the Insane, and one of the most eminent of the alienists of our country. A more extended notice will appear hereafter.

SOCIETY PROCEEDINGS.

MEDICAL SOCIETY OF THE DISTRICT OF COLUMBIA.

Stated Meeting, October 20, 1886.

THE PRESIDENT, C. H. A. KLEINSCHMIDT, M.D., IN THE CHAIR.

H. M. CUTTS, M.D., SECRETARY.

DR. F. C. FERNALD read a paper entitled

EMPYEMA IN AN ADULT—PLEUROTOMY—RECOVERY IN THIRTY-FIVE DAYS.

(See page 619.) He also exhibited the *Cabot dressing* as used in the case.

DR. A. F. A. KING complimented Dr. Fernald on his paper and the success of his operation. He thought pleurotomies were not very common in Washington. He mentioned a case in which Dr. J. F. Thompson had aspirated for chronic pleurisy ten years ago. The patient but recently died of tuberculosis. On another occasion he was with the late Dr. Ashford when he failed in two attempts to find pus, on aspiration, in a liver. The patient had chronic dyspnœa and the constitutional symptoms of suppuration. Dr. Ashford, however, did not agree with Dr. King that there was an hepatic abscess. The patient died suddenly with great dyspnœa, which he thought was due to rupture of hepatic abscess into the pleural cavity. He thought that the pus in Dr. Fernald's case was also from an hepatic abscess.

DR. A. Y. P. GARNETT had had a case similar to Dr. Fernald's. It was one of empyema without any previ-

ous serous effusion. The patient was supposed by his attendant in the country to have phthisis, as there was emaciation, hectic, and expectoration of purulent matter. The right side he found filled with pus, as shown by exploratory aspiration. Assisted by Drs. Acker and Hagner, he had done thoracentesis with a large trocar, and then inserted a long drainage-tube. Thirty to forty ounces of pus came away. He thought pleurotomy more dangerous than this proceeding. No antiseptic precautions had been taken, because he did not much believe in their necessity. A silk string was passed through the tube, and this was caught with adhesive plaster. A sponge caught the discharge. The cavity he had washed out, and on first occasion it took two pints of fluid to fill it. Three days afterwards he could only get in one and one-half pints, and in two weeks only two and one-half ounces. The patient made a rapid and complete recovery and is now a farmer. This result is contradictory to Dr. Fernald's views, as he lays much stress on the use of the antiseptic dressing.

Dr. R. Reyburn had had a boy of 9 years with empyema of right side. He had aspirated and removed fourteen ounces of pus. This did not stop the hectic, which reached 103° to 104.5°. The irritation still remaining in the cavity, it refilled. He did thoracentesis with trocar and inserted a drainage-tube, retained in place as Dr. Garnett's had been. Sixteen ounces of putrid material came away. He injected iodine water of the strength of 20 drops of tr. iodine to 8 ounces of water. The boy made a rapid and complete recovery without a bad symptom. This he considered due to the removal of the putrid material. He had used no antiseptics. He would just as soon now open an empyema as a common abscess.

Dr. A. F. A. King asked Dr. Fernald if the œdema of the chest walls present or a thickened pleura had made it necessary to go one and one-half inches before obtaining fluid?

Dr. Garnett said he had intended before to ask Dr. Fernald why he had chosen pleurotomy instead thoracentesis? In his opinion, pleurotomy was admirable in a fibro-serous effusion where there were clots which would not come through a trocar. This was not a chronic lesion which is shown by definite physical signs, such as alternate areas of amphoric resonance and flatness on percussion, etc., but a simple cavity filled with pus. Pleurotomy is usually considered a much more dangerous and complex operation than thoracentesis.

Dr. J. F. Hartigan said that the case was probably one of so-called "latent empyema" due to some dyscrasia; as, for instance, previous history of liver abscess in this case. Pleurotomy with an incision one to two inches long he thought was always the proper operation for this condition. In the East London Children's Hospital he had seen Mr. Parker do this operation several times. Here they use two large calibre tubes one inch long with a **T**-piece across them. The opening is made under spray and then covered with antiseptic gauze, which is renewed in forty-eight hours. In two weeks the patient is practically well. He had often made post-mortem examinations on patients upon whom the trocar had been used or where there had been no surgical interference, but never where pleurotomy had been done.

Dr. F. C. Fernald, replying to Dr. Garnett, said that there were no means of knowing the exact nature of the pleural contents until an opening had been made. He thought that a long tube left in the cavity of the pleura delayed cure by keeping up suppuration; moreover, he did not consider pleurotomy at the present day dangerous. To Dr. Reyburn he would say that in this case the pus was not putrid. Dr. Reyburn's patient was a boy at an age when there is an intrinsic tendency to get well. His case was in an adult and a colored man, which race, he understood, were peculiarly liable to a fatal result from such lesions. He thought that Dr. Reyburn had used antiseptics when he used iodine water. It was probable that both the œdema on the outside and a thickened pleura prevented his getting pus before he had shoved the aspirating needle one and one-half inches. He thought that while there may be but a little better percentage of recoveries by the Cabot method of dressing, which he had used and just described, there was no method which produced such quick recoveries.

Meeting of October 27, 1886.

The President in the Chair.

Dr. John B. Hamilton reported a case of

TUMOR OF THE ANTRUM, COMPLICATED WITH NASAL POLYPI,

and exhibited the specimen. The patient, W. J. Storms, aged 54, born in Pennsylvania, occupation carpenter, was admitted to the Providence Hospital on May 19, 1886, and was operated upon on the 23d. The tumor completely filled the antrum, and encroached on the orbit and the nasal cavity. There were two polypi springing from the inferior turbinated bone, the right nasal cavity was filled, and the cheek was markedly deformed. The eye projected out of its socket. The tumor had been of slow growth, and entirely painless.

The operation was performed under ether. A curvilinear incision following the curve of the orbit was made at its edge, and met by a similar incision extending vertically alongside of the nose, the flap was reflected and the antrum opened, and the tumor scooped out with the sharp spoon. To my astonishment, no bony wall required removal, for on raising the flap the cavity of the antrum was opened with it; the bone being attenuated anteriorly so as to constitute the thinnest kind of shell. There was then a large opening extending entirely through the superior maxillary bone, and the finger was passed directly into the fauces. Care was taken to scrape out carefully the cavity. Prior to the commencement of the incisions, the polypi were twisted off with stout forceps.

After the operation a carbolized sponge was inserted into the cavity and the flaps closed, a bandage being applied so as to make slight compression. There was no subsequent hæmorrhage. The sponge

was removed on the next day and the flaps carefully adjusted. The wound healed without difficulty, and the patient was discharged recovered June 21, 1886.

DR. I. BERMANN said that tumors of the antrum rarely reached the size of the one exhibited, as they are usually removed when small. He thought that the tumor was a sarcoma, as this is the usual degeneration of such growths.

DR. HAMILTON said that the specimen had been in alcohol since last June, and had changed its external appearance considerably. Nasal polypi usually develop in a capsule. This was an excrescence, and had pushed forward, completely filling the antrum, even pushing the eye out of its socket. The scooping out process had also changed its macroscopical appearance. In a list of nearly 500 tumors of the antrum which he had recently seen, over 50 per cent. were carcinomatous. Sarcomata were, however, very common. There had been no return of this so far as he had learned.

DR. J. F. HARTIGAN said that at present the tumor looked like inspissated mucus.

DR. BERMANN said that when the so-called mucous polypus was punctured there comes out a thick fluid and the tumor flattens so that its appearance is greatly changed. The embryonic cells, when tumor is of slow growth, gradually transform into more solid tissue, and become fibrous with round cells, altogether unlike the original polypus. He thought that this was the case with the exhibit.

DR. HAMILTON said that it was true that mucous polypi vary with age. They are, however, practically cystic in structure, and are classed with the adenomata. When malignant they are myxomatous, or round celled sarcoma—rarely anything else. He had not examined the tumor microscopically.

The Committee on Microscopy reported that the nasal polypi were mucous, and the tumor of the antrum carcinomatous.

CHICAGO SOCIETY OF OPHTHALMOLOGY AND OTOLOGY.

Third Annual Meeting, October 12, 1886.

DR. F. C. HOTZ IN THE CHAIR.

BOERNE BETTMAN, M.D., SECRETARY.

The following were elected

OFFICERS FOR THE ENSUING TERM.

President—Dr. E. Holmes.
Vice-President—Dr. Lyman Ware.
Secretary and Treasurer—Dr. Boerne Bettmann.

DR. F. C. HOTZ read a paper entitled

THE RATIONAL TREATMENT OF PATIENTS AFTER CATARACT OPERATIONS.

Though the safety of the eye is of prime importance, we must, in our anxiety for the recovery of this organ, not entirely disregard the comfort of the patient; for we have no right to deprive our patients of any comfort which does not disturb the healing process. The usual treatment after cataract operations is anything but pleasant to the patient, and many dread the confinement to bed and dark room worse than the operation itself. If it can be shown that such measures are superfluous, they should be abandoned.

When a wound is carefully cleansed and disinfected, and its edges are nicely approximated, it will heal by first union, provided the close adaptation of its edges is not disturbed by external violence or by muscular tractions. Rest of the wounded part is the first condition for kind healing. But to rest the eye ball it is not necessary to put the patient to bed; we can secure the necessary rest for the operated eye, *i. e.*, we suspend the functions of the ocular muscles and immobilize the eyelids, by bandaging *both* eyes. As long as they are closed they remain comparatively motionless. The bandage over both eyes accomplishes this result just as well whether the patient is in bed or sitting in a chair. The confinement to bed, therefore, is irrational; and the recumbent posture is not only of no advantage, but may even disturb the flow of blood to the head; consequently congestion of the ocular tissues is more likely to occur in the recumbent posture than when the patient is sitting up.

The uselessness of darkening the room will be apparent to every one who will bandage his own eyes just in the same manner as we dress the eyes after cataract operations. The bandage shuts off the light so thoroughly that he will be unable to tell whether the room is light or dark. To the patient it is immaterial; but to his attendant it is a great comfort to have light in the room.

In regard to the dressing there is a difference of opinion, the majority of oculists employing the pads and bandage; some closing the eyelids only by strips of plaster, and others discarding all dressings.

If we dispense with the dark room we can not leave the eyes without dressing, because the winking of the eyelids and the constant relations of the eyeball would disturb the wound and cause a good deal of irritation. The plaster strips overcome this difficulty, but they do not give the eye any protection against mechanical insults which might cause a reopening of the freshly united wound. The bandage with padding of absorbent cotton, or any other soft material, secures to the eye rest and protection against accidents, and is therefore to be recommended as the most rational dressing. The flannel roller is open to the objection of being easily disarranged by the movements of the head on the pillow; but a roller of mosquito netting or Swiss gauze, applied wet, forms, when dry, an immobile bandage which does not become loose, and keeps nicely adjusted for any desired length of time.

The sensitiveness of the operated eye to bright light is not due to the bandage; it varies greatly in different persons; some even do not show it at all. When it exists, it only shows that the eye has not completely recovered from the effects of the operation, though the external wound may appear well healed. With the eyes well bandaged my patients are sitting in easy or rocking chairs, in light rooms,

and are even allowed to take an exercising walk in their rooms; they go to bed when they please and get up whenever they like. I have never observed any complication of accident which could directly or indirectly be attributed to this mode of treatment. The recovery was as rapid and the results as good as under the old fashioned régime.

SUFFOLK DISTRICT MEDICAL SOCIETY.

SECTION FOR CLINICAL MEDICINE, PATHOLOGY AND HYGIENE.

Stated Meeting, October 13, 1886.

DR. V. Y. BOWDITCH IN THE CHAIR.

ALBERT N. BLODGETT, M.D., SECRETARY.

PROF. T. W. SEDGWICK read a paper on

THE FILTRATION OF POTABLE WATERS, WITH REFERENCE TO THE ELIMINATION OF ORGANIC GERMS.

Drinking water is seldom or never free from organic matter. A good quality of deep-well water is probably as free as any other from it, and yet Frankland, by the method of biological examination (gelatine plate-cultures), found rarely more than ten microbes in one cubic centimetre of such water. The same quantity of water taken from the Thames at Hampton contained about one thousand microbes. We shall probably not be far wrong in supposing the same to be true of drinking waters generally. All contain more or less of organic matter, if not when first taken from the well or spring, certainly before they enter the mouth. Some of this matter is living, in the shape of bacteria, infusoria, diatoms, etc., and some is lifeless, being either dissolved or suspended. The entire quantity, however, in what is ordinarily called wholesome drinking water—namely, that from springs, wells, rivers, etc.—is a very small percentage of the total volume of liquid. These waters are by no means necessarily to be condemned on that account, but are still to be regarded as perfectly wholesome.

There is, nevertheless, a *possibility* of danger in this organic matter, and hence the water supply of a community must always be closely watched, and, if necessary, rarely, in times of epidemics, perhaps even abandoned altogether for a while. But this possibility, once recognized and constantly kept in mind, need not cause great anxiety.

We cannot easily get rid of all the organic matters in drinking water, nor is this necessary, except from a theoretical point of view. Most of the microbes present are perfectly harmless, and if all were removed, there would still be abundant opportunities for introducing them into the body through other channels.

There are, however, two ways in which organic matters in drinking waters may be rendered harmless: 1, by removal (filtration); 2, by killing (heat). The latter is an easy, but not a sure method, since the spores of some microbes endure even prolonged boiling. Boiling is, however, a useful, simple, and inexpensive, though rough and imperfect method of protection. Filtration, formerly a mere straining, has, of late, aspired to *sterilize*, that is, to remove from the water all its living substances, however infinitesimal. In this event the filtrate must be perfectly safe for drinking purposes, even the *possibility* of danger having been removed. Most filters do not claim such perfection, and most which do, fail to reach it. The "Chamberland" filter is said to sterilize, and the micro-membrane filter invented by Breyer, of Munich, is claimed to do the same. [The speaker then exhibited a micro-membrane filtering apparatus imported by Prof. Nichols. An ultra-marine mixture (in water), a fluid which filters with great difficulty, was shown to be perfectly separated by the apparatus.] The essential part of this is a filtering surface of finely divided asbestos. This is made by grinding the mineral in water, then mixing it with crystallized carbonate of calcium, grinding again thoroughly, and adding hydrochloric acid. The sharp edges of the crystallized carbonate seem to penetrate the asbestos, splitting it up—a process which is carried further by the escaping bubbles of carbon dioxide. In this way, fibres of extraordinary fineness are obtained, and, by other steps, made into filtering sheets or "lamels," which are easily arranged for filtration. Prof. Nichols had made some experiments with the filter, but was not convinced that it would sterilize, although he granted its great perfection.

He closed by affirming his full agreement with Prof. Nichols in the following statements taken from a paper by the latter, upon the micro-membrane filter, read before the Society of Arts in April, 1886: "Personally, I am quite content with the efficacy of the filter, and I think, in its larger forms, with attached reservoir, it may serve a good purpose. Of course in this country, these small filters, which take an hour to filter a quart of water, would be quite useless. No one will wait fifteen minutes for a glass of water to filter through; he would rather take his chances for a few more microbes. I do not lay so very much stress upon this matter of "germs" in the present connection. First, because there is no proof that the number of microbes bears any direct relation to the wholesomeness of the water; second, because a water furnished or used for domestic supply ought not to contain *dangerous* organisms requiring removal; third, because, even if it were possible to obtain a germ-free water by carefully sterilizing the whole apparatus, and receiving the filtered water in sterilized vessels, such water would not be obtained in the ordinary use of the apparatus."

DR. S. W. ABBOT, of the Massachusetts State Board of Health, said: There are two things to be borne in mind in the study of filtration of water; one relates to the well-being of the consumer, and is of use only as it modifies the actual condition of the water; while the other relates to the financial success of the company manufacturing the filter. Filters as now made are all more or less defective, and accomplish the objects for which they are manufactured with more or less completeness. If we could have a filter which would adequately protect the consumer of the

water against the contamination which may, and too frequently does, exist in drinking water, we should have a good thing. A filter is a thing which is the subject of many erroneous ideas on the part of the public. All filters containing charcoal, silica, etc., will remove a certain amount of dirt from the water, and the popular idea seems to be that thereby they actually protect the public from the effects of contaminated water. This is a positive mistake, but many people are firmly persuaded that filtration transforms an injurious water-supply to a wholesome one. We cannot put reliance upon any appliance for the mechanical purification of drinking water until it is proved to do more than any filter is now doing. In regard to the micro-membrane filter, it must be remembered that this is a new instrument, and it might not do so good work after a certain period of use as it now does. If it could be enlarged, it would seem to offer the promise of a really good and serviceable filter. It looks as if it might exclude bacteria. If any form of filter could be devised which might be applied to the water at its source of supply, instead of at the end of the service, it would be a vast improvement over any present system.

DR. J. G. BLAKE said that the subject of filters is a broad one, and much misapprehension doubtless exists upon their design and usefulness. A filter is no more than a strainer, and will do the mechanical work of a more or less perfect strainer, and that is about all it will do. The ordinary filter is much too small for useful service, and can do only imperfectly the duty of separating the extraneous matters in water, as is usually seen in the action of most filters. The amount of filtering material is ordinarily far too small to properly strain out the foreign substances or to furnish even an approximately pure water. If the micro-membrane filter can be made practicable and constructed cheaply it would seem to be a good thing.

MR. DESMOND FITZGERALD, of the Cochituate Water Board, said that the whole question of the filtration of water will resolve itself into two propositions. First, does it pay? Second, can the various impurities in water be removed by this means? Can filtration remove the color from impure water? Can it abstract the albumenoid ammonia and other chemical contaminations? Until a filter can be produced which shall answer these demands, this appliance will not come into general use. With respect to the micro-membrane filter, the question to be asked is, will it clog? will it remove chlorine? will it still continue to remove these impurities after a period more or less long of active service? At present all forms of domestic filters are simply strainers. We have not arrived at perfection in the manner of distribution of water-supply, and are farther still from the practicable and reliable means of its purification. Filtration to be most effective should be conducted in such a manner that the water may pass slowly through the filtering medium, and thus allow the detention of deleterious matters. Rapid filtration is not in accordance with the principles of perfect separation of impurities,

In answer to Dr. Blake, Mr. Fitzgerald said that the cost of filtration of water on a large scale would not probably be so large as to interfere with its practicability, if a useful method could be devised.

PROF. GEO. F. SWAIN, of the Massachusetts Institute of Technology, said: It is not necessary to remove all the germs from the drinking water, even if this were possible. The place for the removal of organic matter is not at the delivery of the water in the house of the consumer, but it is at the source. The dirt in the state of mechanical suspension can be removed by a simple filter at the point where the water is drawn for use. In regard to filtration on a large scale, it is simply straining, and not filtration in any proper sense of the word. Prof. Swain then described the Diamond Filter, for the purification of water for domestic purposes, as follows: This filter is intended to be attached directly to the supply-pipe, taking the place of a faucet, and it consists of a cast-iron enamelled cylinder, to which a top is screwed, the water entering at the bottom and passing out at the top. The filtering material consists of two layers of quartz sand with an intermediate layer of bone charcoal, closely packed between two brass gratings, to which are soldered screens of fine brass wire. The area of cross-section of the filter being very much larger than that of the inlet pipe, the velocity of the water through the filtering medium is very much reduced, and the coarser particles settle below the lower grating or are caught on the wire screen, while the finer ones are intercepted by the lower layer of quartz, very little even reaching the charcoal, which therefore needs renewal but seldom.

The principal peculiarity of the filter lies in the method of cleansing. It is divided internally by a vertical solid partition, and at the inlet a four-way cock is placed. The two upper openings are inlets, and the two lower ones outlets, leading to the discharge-pipe just below the inlet; the inlet and outlet on the right being connected with the right-hand half, and those on the left with the left-hand half of the filter. In ordinary working both inlets are open and both outlets closed, the water entering on both sides and ascending through the whole body of the filter; but if the filter is to be cleansed the outlet valve or cock is closed, and the far-away cock is turned so that the left-hand (upper) inlet, and the right-hand (lower) outlet are closed, the water passing in at the right, up through the right-hand half, down through the left-hand half, and out through the outlet, thus cleansing the left-hand half with *filtered water*, a point upon which the inventor lays great stress. By turning the four-way cock so that the right-hand inlet and left-hand outlet are closed, the course of the water may be reversed, and the right-hand compartment cleansed. Finally, if the water contains such finely divided particles as to be but imperfectly filtered in the ordinary manner, the usual outlet valve may be closed and the water drawn from the lower discharge, after having been made to pass up and down through the filter. The filtering material is renewed by unscrewing and removing the top. The ordinary sizes of this filter, which is made by John G. Avery, in Spencer, Mass., are: No. 1, 4 in. diam., 6 in. high, 4 in. of filtering material, price

$10; No. 2, 6 in. diam., 8 in high, 6 in. of filtering material, price $15; No. 3, 12 in. diam., 15 in. high, 11 in. of filtering material, price $35. Very much larger sizes, however, have been made in special cases.

Dr. Henry J. Barnes spoke at some length of the desirability of securing the utmost degree of cleanliness in the fluid we use as a drink, and continued as follows: The desirability of filtering the water-supply of Boston has been greatly diminished, through the influence of the members of this and the parent Medical Society, exercised chiefly through the valuable services of Dr. John G. Blake, a member of "The Commission of Investigation," since which the storage basins on the Sudbury River have been relieved of a large amount of vegetable mould, the decay and disintegration of which loaded the water with a great volume of organic matter. There has been little to complain of in the character of this water. At the present time these storage reservoirs are practically in the condition of "natural ponds," polluted to a greater or less extent by organic matter both animal and vegetable, dead and alive, washed into the basins with every rainstorm of magnitude, beside no inconsiderable amount of sewage which the praiseworthy efforts of the Water Board and engineer have failed to exclude. Nature strives, and in a manner succeeds, in neutralizing this baneful influence by inhabiting the water with living organisms which devour the dead, prey upon the living, and transform organic into inorganic matter. Insects, fishes, mollusks, crustaceans, diatoms, and other species of animalcules, each and all contribute to this end. And it is therefore undesirable, even if possible, to defertilize it at this point.

The bacteria of putrefaction, consuming oxygen, convert nitrogenous matter into plant-food. Vegetation inhaling carbonic acid and exhaling oxygen, renders it possible for animal life to exist. The algæ selecting food from elements set free by decomposition, the spongella subsisting upon animalcules and the spores of the algæ, are but steps which, if properly balanced, contribute towards purification. The balancing of these organisms, the ideal condition of a water-supply, is not to be hoped for where so many factors interfere with harmony. Unconsumed animal and vegetable material, with the coagula of imperfectly decomposed soluble matter, finds its way into the service pipes, for which we have no means of elimination except by filtration. It is here shown by the working of these filters to be considerable, and I do not believe its consumption conducive to the best hygiene. Nature strains it all out in converting surface into spring water. If we can imitate her by artificial devices it is certainly desirable, and it does seem as if many of these machines do excellent service in this direction. While advocating their use, then, for the Sudbury and Cochituate service, I should deprecate the establishment of the notion that any are capable of freeing water from those noxious elements which go to make up six-sevenths of the pollution where sewage is discharged. The dissolved nitrogenous matter in urine, the almost completely soluble fæcal discharge, must of necessity pass through any mechanical obstruction the mesh of which is capable of transmitting the liquid vehicle. For this reason, water contaminated as in our Mystic supply, with human excreta, washings from tanneries, currying shops, glue-factories, piggeries, etc., cannot be materially benefited by any of these appliances. By chemical treatment, a portion of the soluble matter can be precipitated, but of the great variety of methods employed. but few produce an effluent from sewage which should be discharged even into water not used for domestic purposes. One of the simplest and best plans for this purpose is employed at Stroud, England, and known as the "Bird Process." Impure sulphate of alumina and sulphuric acid are the agents. The acid is added to powdered clay a few days before it is used, from a hopper regulating the discharge, into a current of sewage which goes to the first reservoir of deposit. From this receptacle it runs under another hopper discharging clay mixed with sulphuric acid to a second reservoir, and from thence over three lays of filtering coke. Analysis of the influent and effluent water shows in parts per 100,000 in weight, the water before treatment to contain 53.5 soluble and insoluble matter; after, 48.5.

	Before.	After.
Organic carbon	2.289	2.203
Nitrogenous matter	2.859	1.779
Ammonia	6.000	5.000
Nitrogenous matter in combination	7.800	5.887
Matter in suspension, mineral and organic	43.000	4.008

This result, though obviously good, cannot be considered satisfactory epuration for domestic purposes. Clay will promote decomposition of nitrogenous matter when brought in contact with the lime it contains, and the alum will cause a precipitation. But this has proved an unsatisfactory method in the treatment of sewage at Tottenham, although complete clarification was secured before discharging in the river Lea. A floculent deposit collected on the bed of the river of highly putrescible character.

It is obviously impossible to treat potable water with clay even if a more satisfactory result could be attained. The more complicated methods of chemical treatment, such as Hille's, Goodall's, Holden's, Campbell's, and Scott's processes, the A. B. C. process of Sillar, the lime and chloride of iron treatment, afford little assurance of successful epuration, and many of the agents employed would be objectionable in a water-supply. Dr. Frankland wrote a few years ago: "The actual resources of chemistry do not permit the hope that the dissolved impurities in sewage can be precipitated by any appliance of chemical reaction, and unless new chemical laws are discovered, it is useless to attempt the employment of this agency."

Soil purification, though capable of transforming sewage into potable water, opens up a subject beyond the limits set for consideration this evening, and it is not applicable to the purification of water in open sewage basins, except so far as filter galleries will eliminate a certain amount of material in suspension.

Dr. Harold C. Ernst said that he desired to protest against the view apparently advanced by Prof. Sedgwick, that the indiscriminate and unhin-

dered swallowing of bacteria in any and all forms is harmless, not to say wholesome. No person who has ever witnessed the results of the ingestion of the germs of cholera, either in the way of an epidemical outbreak of that disease, or as a means of research in experimental pathology, could entertain such an idea for a moment. The sterilization of water by filtration has been tried in a very thorough manner in the laboratory of Prof. Koch in Berlin. Many different kinds of filters were employed, and the resulting filtrate was tested as to its freedom from germs by means of culture-plates. None of the common forms of filter were found to be bacteria-proof. Only one was found which was capable of arresting the germ contents of water. This was the filter devised by Chambourland, in Prof. Pasteur's laboratory. In most of the filters it was observed that the germs grew rapidly in the filter, and soon penetrated the wall of the filter by direct growth from the other side, and thus appeared in the filtrate in large numbers.

PROF. SEDGWICK stated that he by no means wished to be understood as believing that it was safe or prudent to employ polluted water for domestic purposes. He said that there was no doubt, on the other hand, that a vast number of germs were taken into the human organism every day, and there is usually no serious result from their ingestion. Of course there are microscopic germs, which are harmful or even destructive to the animal body, and these can never be taken except on peril of great disturbance to the functions of the body, but there are also a vast number of germs which may be and are taken into the body without perceptible detriment.

DOMESTIC CORRESPONDENCE

LETTER FROM NEW YORK.

(FROM OUR OWN CORRESPONDENT.)

New York State Medical Association — Pulmonary Tuberculosis—Puerperal Eclampsia—Officers.

The discussion on "Pulmonary Tuberculosis" on the second day of the meeting of the New York State Medical Association, was of very great interest. It was opened by Dr. Henry D. Didama, of Syracuse, who in his usual attractive style gave an exposition of his well-known views in regard to the causes, prevention and treatment of the disease. The first division of the subject considered was its etiological factors. The *inherited* were discussed by Dr. John Cronyn, of Buffalo, the *acquired* (micro-organisms) by Dr. Herman M. Biggs, of New York, and the *predisposing* by Dr. Henry L. Elsner, of Syracuse. One of the questions handled by the latter was: Is there not satisfactory evidence that some cases of pulmonary consumption are non-tubercular at the start, and that other cases remain free from tubercles throughout their course? and the speaker expressed his positive conviction that there is such a thing as non-tubercular consumption.

The second division was the matter of prophylaxis, and this was discussed by Dr. Wm. H. Flint, of New York. He spoke of the necessity of removing the children of tuberculous parents from their homes during the period of infancy, and longer in certain cases, and of preventing the association of individuals with cellular impairment with the subjects of tuberculosis. He also advocated the regular disinfection of the sputa and dejections of tuberculous patients. One of the subjects discussed by him was: How can the medical profession most widely diffuse and inculcate the important truth that consumption in children is often the result of parental faults and vices? and he thought that this could only be done by conscientious individual efforts by the members of the profession. The third division, treatment, was discussed by Dr. John Shrady, who in the course of his remarks gave an interesting *résumé* of what had up to the present time been accomplished in the way of local antiseptic therapeusis, including some important experiments lately made by Dr. L. J. McNamara, of the Carnegie Laboratory, which have not as yet been published. While not expressing a positive opinion as to the value of such measures, it seemed to him probable that further investigations would establish their utility, in conjunction with the constitutional and hygienic treatment now generally recognized as appropriate in pulmonary consumption.

On the third day of the meeting there was a general discussion on "Puerperal Eclampsia," and it was opened by Dr. Wm. T Lusk, of New York, in a paper eminently worthy of his reputation. Dr. James Tyson, of Philadelphia, who, like the gentlemen from a distance who took part in the discussion on laparotomy, came on by special invitation for the purpose of lending additional interest to the proceedings, discussed, in his learned and forcible manner, the connection between uræmia and the eclamptic attack. The questions, Should labor be induced in case of the occurrence of eclampsia during pregnancy? and under what circumstances, in case of threatened eclampsia, shall premature labor be induced as a prophylactic measure? were discussed by Drs. Isaac E. Taylor and T. Gaillard Thomas, of New York.

Dr. Thomas said he thought that the following points would be accepted, as resting even now upon a substantial and enduring basis: 1. That as we have a form of renal disease entitled desquamative nephritis, due to certain causes about which pathologists are pretty well agreed, and another entitled scarlatinous nephritis, due to the blood poisoning of scarlet fever; so have we still a third which should be entitled puerperal nephritis, which commonly attends upon and is undoubtedly due to the condition of utero-gestation. 2. That puerperal nephritis is the great, if not the sole, cause of puerperal eclampsia. 3. That puerperal nephritis accomplishes this result by leaving the blood surcharged with certain noxious elements which the crippled condition of the kidneys causes them to fail to eliminate. 4. That while we are ignorant of the method by which the puerperium induces this form of nephritis, we have abundant evidence of the fact that so soon as utero gestation ceases to progress, the renal trouble, as a rule, diminishes, and soon disappears.

Dr. Thomas said that in all his extended experience he has seen but two cases in which puerperal convulsions were unattended by the unquestionable evidences of renal disease. In both these cases, after the immediate eclamptic seizures had disappeared, albumen in large amount was found present in the urine. He related an interesting case illustrating the point of the disappearance of the renal trouble as soon as pregnancy ceases to progress. He unhesitatingly and in the strongest possible manner advised the induction of premature labor in eclampsia occurring at the sixth, seventh or eighth month of pregnancy, as he had found by long experience that any other course was attended with great danger and was in every way unsatisfactory. He explained, however, that he did not by any means maintain that when a patient is rigid with puerperal convulsions labor should always be immediately brought on. In many cases in which the seizures yielded to appropriate remedies it was wise not immediately to excite the nervous system by the establishment of parturition; but to wait for two, three or four days, until the morbid chain was broken which had registered itself upon the nervous system. It was not such judicious delay as this that he was opposed to; but to that delay which for weeks and months exposed the patient to a reëstablishment of all the morbid elements necessary to eclampsia, to the development of which she had already shown herself prone. Under these circumstances parents who were anxious for offspring would often oppose the establishment of premature labor, under the idea that delay would secure for the child a greater chance of life. If the process of gestation had advanced beyond the seventh month, so far from this being the case, the chances of life for the child were much enhanced by interference.

There were three circumstances, and three alone, he went on to say, which would prompt a different line of action from that which he had advocated: 1, the fact that the convulsions were due to some direct and certainly ascertainable irritant influence susceptible of removal by emesis, catharsis, or some similar method; 2, that they were of purely hysterical character, or partook of the form of true epilepsy, to which the patient had long been subject. Under these circumstances the seizures would depend upon no condition which was likely to prove cumulative from the prolongation of utero-gestation. Besides this, it was to be borne in mind that these seizures would not come into the category which was now being considered. 3. If it should be ascertained that the child had lost its life during the existence of maternal convulsions, and the seizures were controlled by treatment, he should, from his own experience, be willing to leave the case to nature, confident that the ending of the progress of gestation would remove all danger for the future, even although a dead child with its secundines still occupied the uterine cavity.

In answer to the query, Under what circumstances, in case of threatened eclampsia, should premature labor be induced as a prophylactic measure? he said: 1. Every obstetrician mindful of his duty will invariably, after the third month of pregnancy, examine the urine up to the full term, at least as often as every ten or fourteen days. 2. If evidences of puerperal nephritis demonstrate their existence before the end of the seventh month, the period of fœtal viability, every effort should be made by daily warm baths, the milk diet, laxatives, and the nightly use of the bromides, to "tide the case over" until that period has been reached. 3. If the amount of albumen, tube-casts and epithelium be plentiful in the urine; if the secretion of urine be scanty; the patient complain of headache, dimness of vision, and decided gastric disturbances, and all these symptoms did not at once diminish under the prophylactic measures already mentioned, we should not hesitate to bring on premature delivery at once. 4. Should the patient have passed through several pregnancies with safety, having at the same time presented the symptoms of puerperal nephritis; should the amount of albumen be moderate, and the secretion free, with a good proportion of solid elements in it; should the evidences of constitutional disturbance be slight, and the effects of prophylactic measures satisfactory, it would not be advisable to induce premature labor, but would be better to await the full term of gestation. "But," said Dr. Thomas, "I should await it as a soldier waits who 'lies upon his arms,' watchful and wary, ready at a moment's notice to meet an issue which threatens night and day."

The third question, What are the most reliable therapeutic agents for the control of the convulsions, and should bleeding be employed in eclampsia? was discussed by Dr. Darwin Colvin, of Wayne County, who strongly advocated bleeding, and Dr. George T. Harrison, of New York, who as strenuously opposed it. After the discussion of the fourth question, In what proportion do the insane in public asylums owe their insanity to puerperal convulsions? by Drs. J. R. MacGregor, of New York, and G. A. Blumer, of the State Lunatic Asylum at Utica, a general discussion of puerperal convulsions and their treatment was participated in by the Association at large.

The following officers were elected: *President*, Dr. Isaac E. Taylor, of New York; *Vice-Presidents:* First District, Dr. L. C. Dodge, of Rouse's Point; Second District, Dr. J. D. Sherer, of Waterford; Third District, Dr. G. W. Avery, of Norwich; Fourth District, Dr. Darwin Colvin, of Clyde. The offices of Recording and Corresponding Secretary were united, and Dr. E. D. Ferguson, of Troy, elected to the position. Dr. J. H. Hinton, of New York, was elected Treasurer, and Dr. J. W. S. Gouley was made Director of the Library.

On the first night of the session an interesting and instructive entertainment was held at the Carnegie Laboratory, when Dr. E. G. Janeway gave a demonstration of projections on the screen of representations of Friedlander's pneumo-coccus, the bacilli of cholera, tuberculosis, anthrax and typhoid fever, and other microbes; after which a large number of microscopical preparations and cultures of the various pathogenic micro-organisms were exhibited by Dr. H. M. Biggs. As previously mentioned, the whole session was wound up very satisfactorily with a *conversazione* and supper. P. B. P.

INHALATIONS OF COCAINE IN WHOOPING-COUGH.

TO THE EDITOR OF THE JOURNAL:

Dear Sir:—In THE JOURNAL of October 9, page 403, Dr. A. Y. P. Garnett has an article on the treatment of whooping-cough by inhalations of muriate of cocaine, in which he says: "In order to procure it in a form sufficiently volatile to be readily vaporized, I selected chloroform as the solvent. A 6 per cent. solution of muriate of cocaine in chloroform was prepared, and 10 minims poured in a wineglass, made warm by tepid water, was placed under the patient's mouth, whilst the mother was instructed to keep the nostrils closed. . . . It was found by this means many of the paroxysms were arrested or materially cut short," etc.

In reading the paper, the thought at once occurred to me that the relief was derived from the chloroform, the vapors of which passed off, leaving the cocaine. At my request Mr. James Kennedy, Ph.G., investigated the matter and handed me the following as the result:

"Cocaine hydrochlorate does not volatilize at the temperature of the water bath, nor does it rise with the vapor of its chloroformic solution. A 6 per cent. solution of cocaine in chloroform, evaporated to dryness on water bath, yielded as a residue the entire quantity of the salt." T. J. TYNER, M.D.

San Antonio, Texas, Nov. 22, 1886.

BOOK REVIEWS.

Two Comedies: AN ILL WIND; AN ABJECT APOLOGY. By F. DONALDSON, JR. 12mo., pp. 79, parchment, Boston: Cupples, Upham & Co. 1887. Chicago: A. C. McClurg & Co.

Even medical men, matter of fact as most of them are, must sometimes indulge in recreation; and when it is such that amusement or recreation is furnished for their confrères it must be all the more pleasant to them. And really, a non-professional book by a physician has a more than common interest for other (reading) medical men. We may often judge a man very much by his avocation, as by his vocation.

Strictly speaking, however, Dr. Donaldson's two comedies may be said to be the records of some cases of aggravated heart disease, of that peculiar form which affects persons between the ages of 18 and—109 (which we believe to be the limit). In all, five cases are recorded, with three complete recoveries. It is only fair to say that the two cases which are not reported as cured passed from observation. It is a matter of interest that three of the five cases were females, as it is the general opinion that this affection is more common among males. Perhaps it is not best to speak of "recovery" in these cases. The worst cases of the disease cause melancholia of various forms, and the affection may be classified under the general term *philomania*; and this may be subdivided into *gynæcomania*, which only affects males, and *andromania*, which is peculiar to females. While this philomania may often cause great depression of spirits, it is very rarely fatal, unless we include the unauthenticated cases reported by writers of fiction. In the majority of cases the disease runs an irregular course, and may be cured of its worst features by self-limitation or by what may be called compensatory cardiac reciprocity. *Philomania acuta* is the less dangerous form of the disease, and is generally of an intermittent type. In the chronic form the unhappy patient may be brought to the verge of idiocy. There is good ground for holding that the disease is often contagious.

As readers we welcome Dr. Donaldson's appearance in that portion of the literary world which we, as medical men, can visit but too seldom. The every day life of some of us is so full of tragedy that his "Two Comedies" are welcome guests.

TRANSACTIONS OF THE TEXAS STATE MEDICAL ASSOCIATION. Eighteenth Annual Session, held at Dallas, Texas, April 27, 28, 29 and 30. 1886. 8vo, pp. 691. Austin; 1886.

The Texas State Medical Association may well be proud of its last volume of Transactions. Some improvements might be easily made in its arrangement. For example, it is difficult to understand why all the papers should be attached as an appendix, and why the publication committee did not do a little more editing. Again, should this volume go abroad some of our European colleagues will wonder why certain French and German names are not spelled correctly. The names of several of our valued contemporaries have also been well disguised in some places. There is another point to which we desire to call attention. One member of the Association reports a case of what seems to have been chronic catarrhal gastritis with some unusual symptoms. It is reported as "A Remarkable Case in my Practice." The first thing to do in writing an article is to give it a proper and descriptive title. We call attention to this now because it is a fault of so many writers to make a title which is descriptive of anything from a ruptured perineum to hay fever. "Cases from Practice" is an abomination which is too frequently seen. The title of a paper should be indexical of the whole paper. All writers may not know this, but a publication committee is supposed to know it.

For all this, however, the volume under consideration is one upon which the members of the Texas Association may congratulate themselves. It is very handsome, and well printed on excellent paper. It contains some good articles, which would be all the better if they were properly indexed. Six hundred and ninety-one pages of book is a good deal to send out without an index. One of the best papers in the volume is on "Boracic Acid in Surgery and Gynecology," by Dr. C. M. Ramsdell, of Lampasas, which will repay careful reading. Dr. O. L. Williams, of Chapel Hill, reports two cases in which electricity acted well in congestive fever (pernicious malarial?). Dr. Q. C. Smith, of Austin, in an interesting paper on the "Treatment of Sporadic Dysenteries," very properly condemns opium, mercury and starvation. Dr. T. C. Osborn, of Cleburne, calls attention to the

usefulness of bimuriate of quinine with urea generally, and particularly in a case of pneumonia. Dr. J. R. Briggs, of Fort Worth, calls attention to the value of lycopus Virginicus (bugle weed) in the bites and stings of insects and reptiles. This plant seems worthy of a closer examination than has been given to its physiological action. A valuable contribution to the subject of malaria may be found in a paper by Dr. Henry K. Leake, on "Malarial Irritation of the Bladder in the Female." Those who may be inclined to doubt the wisdom of conservative treatment in gun-shot fracture of the femur would do well to read the report of four cases, all of which recovered, by Dr. J. T. Field, of Fort Worth. Dr. J. G. O'Brien, of Dublin, reports a case of extraction, by tracheolaryngotomy, of a watermelon seed from the air passages of a child 12 months old, with recovery. Dr. B. F. Brittain, of Jacksonville, records a very curious case of necrosis of the lower maxilla, which began with toothache. The necrosed portion was removed, with a good result. Dr. M. C. Farrar, of Fort Worth, reports a case of amputation of both legs, with recovery, and death subsequently from abscess of the pancreas. Dr. O. Eastland, of Wichita Falls, reports a case of dislocation of the long head of the biceps, which was reduced spontaneously on the fourth day, after ineffectual efforts by the method of Prince. The Prize of the Association was awarded to Dr. J. R. Briggs, of Fort Worth, for a paper on "Physical and Mental Culture," which we hope to notice soon in another department.

MISCELLANEOUS.

Influence of Music on the System.—It has long been a familar fact that susceptible, or perhaps we ought to say very impressionable, nervous centres, either of brain or cord, or both, may be influenced by music. Whether the influence exerted is not purely physical—perhaps mechanical—and of the nature of vibratory movement of a nature akin to that exemplified by the phenomena of sensitive and musical flames, and obeying the laws of concord or discord, which Newton demonstrated to determining the chromatic and diatonic scales respectively, which Grove further illustrated in the indication of his doctrine of the correlation of forces, and which Tyndall has reduced to practice—may be a moot question, but we cannot doubt that it will sooner or later be settled in the affirmative. However that may be, the fact remains that music does act powerfully on the majority of nervous systems, and there is reason to think that the brain is not alone affected. For example, the movements of the lower limbs both in dancing and marching are distinctly influenced by music independently of the consciousness. When the brain at first participates in the excitement produced, it may become engrossed with other matters, and rhythmical muscular movements of the extremities, and in a lesser degree of the trunk, will be continued automatically in harmony with the music. Direct impressions on the cerebral centres are probably transmitted through the auditory centre. Thus monotonous and slow music will exert a calming influence, provided that it be not too slow to be in harmony with the nerve habit of the individual, as in that case it may irritate. It is also essential to the success of any endeavor to bring the brain under the control of music, that it should first arrest the attention either by its power or sweetness, and then gradualy conduct the organism into harmony with itself. A measured cadence of the sort likely to calm the mind is more likely to augment than to allay irritation, unless it begin with a powerful appeal to the brain in a key which accords with that in which the cerebrum is at the moment itself working. This has not perhaps been sufficiently well understood in some attempts which have been made experimentally to use music as a remedial measure. So with endeavors to rouse the spirits by music, the opening needs to be plaintive, and in the key of melancholy which harmonizes with the brain state of the patient. The attention being arrested and the cerebrum reached through the auditory centre, the key must be gradually changed, and the time quickened in such a manner as to change the brain state. No great progress will be made with the employment of sound, and form, and color, as remedial agents, powerful as these agents really are, until we dismiss the unscientific idea of "mind," and begin to regard the brain as an organ which, like all other parts of the body, obeys physical laws and performs its function by purely physical processes.—*American Musician*, Nov. 27, 1886.

Dr. Shakespeare's Recent Investigation upon Cholera.—On the 18th instant a special meeting of the College of Physicians of this city was held in order to hear a lecture upon Cholera by Dr. E. O. Shakespeare, who has recently returned from a tour of investigation by special appointment of the United States government. During his stay abroad he made personal visits to those whose labors have rendered them distinguished in this field; not only in several countries in Europe, but also in India. In commencing his review of his work, at the College, Dr. Shakespeare gave brief accounts of recent epidemics of cholera in the different countries where it had been studied, and illustrated his remarks by diagrams of morbidity and mortality. The connection between the outbreaks of the disease and infected water-supply was clearly shown in nearly every instance.

Although the proof of the statement that the comma bacillus is the active and efficient cause of cholera Asiatica was not entirely satisfactory to his mind, the lecturer felt no hesitation in declaring that Koch had conferred an inestimable boon upon the race by placing in the hands of every practitioner an infallible means of diagnosis of this disease from cholera morbus and other diseases resembling cholera. He expressed the opinion that a health-officer or physician who, in the presence of suspected cases and before the prevalence of the malady as an epidemic, should fail to employ this means of deciding whether or not the disease is genuine cholera, would be guilty of criminal negligence.

After a personal visit to Ferran, in Valencia, and an examination of his methods of investigation, he was prepared to endorse the verdict of the French Commission with regard to the condition of his laboratory, but as to Ferran himself he arrived at a different conclusion. He was impressed by his modest bearing, and believed him a cultured gentleman, possessed of no mean skill as a bacteriologist. In his laboratory Dr. Shakespeare found as pure cultures of the comma-bacillus, and as handsomely mounted and stained specimens, as could be found anywhere in Europe. A few of these slides, made in his presence, were exhibited after the lecture was finished.

With regard to the result of Ferran's inoculations, Dr. Shakespeare demonstrated by the official returns made by the Government officers, who are not friendly to Ferran, that there was a sudden and marked reduction in the number of cases and in the mortality in several villages after the inoculations were begun—this measure apparently having about six times the value of ordinary hygienic precautions in checking the epidemic. The facts concerning inoculation, so far as they have been reported officially, seem to indicate the importance of making in future epidemics, this method the subject of a searching scientific investigation, such as it has not received up to the present time.—*Philadelphia Medical Times*, November 27, 1886.

THE INTERNATIONAL MEDICAL CONGRESS.—Among the foreign physicians who are expected to attend the Congress, and to read papers, are the following: Mr. W. D. Spanton, of England; Dr. E. Landolt, of Paris; Dr. A Struebens, of Brussels; Dr. Julius Althaus, of London; Dr. A. Cordes, of Geneva; Dr. P. Ménière, of Paris, ("The Treatment of Fibrous Tumors of the Uterus") Dr. T. M. Madden, of Dublin ("Laparotomy in Relation to Modern Gynæcology"); Dr. W. U. Whitmarsh, of England ("Vaccination and the Pasteur Method"); Dr. Léon Petit, of Paris; Dr. A. Hegar, of Freiburg ("The Diagnosis, Origin, and Surgical Treatment of Tuberculosis of the Genitalia"); Dr. G. H. Savage of London ("Some Relationships of Syphilis to General Paralysis of the Insane"); Dr. W. Macewen, of Glasgow; Mr. Edmund Owen, of London; Mr. Lawson Tait, of Birmingham ("The Pathology and Treatment of Tubal Pregnancy"); Dr. J. Veit, of Berlin ("Tubal Pregnancy"); Dr. D. Perruzzi, of Bologna ("In the Cases of Cæsarean Section in which Porro's Hystero-oöphorectomy is not absolutely indicated, what is the best manner of Suturing the Wound of the Uterus?") Dr. E. Ehrendorfer, of Vienna ("The Prophylaxis of Puerperal Fever"); Dr. J. A. Doléris, of Paris; Dr. Gusserow, of Berlin; Dr. A. Charpentier, of Paris; Dr. G. Braun, of Vienna; Dr. L. Casarti, of Florence ("The Origin and Causes of Sterility in Women"); Dr. J. Korosi, of Budapest ("New Observations on the Preservative Power of Vaccination"); Dr. E. H. Kirch and Dr. A. Olendorff, of Prague; Dr. H. Power, of London ("Microbes in the Development of Ophthalmic Diseases"). Dr. A. Eulenburg, of Berlin; Dr. W. Murrell, Dr. B. W. Richardson, and Dr. J. L. W. Thudichum, of London; Dr. Dujardin-Beaumetz, of Paris; Dr. G. P. Unna, of Hamburg; and Dr. Eustace Smith, Mr. Christopher Heath, and Dr. H. Charlton Bastian, of London, are also expected.—*N. Y. Medical Journal*, Nov. 13, 1886.

DEATH OF M. PAUL BERT.—In the death of M. Paul Bert, which occurred on November 11, science has lost a master whose place cannot be easily filled. He was born at Auxerre, on October 17, 1833, and was licensed as a Doctor of Medicine in 1863. His work in physiology is so well known that it need not be more than referred to. He was elected to the National Assembly in 1872, and was appointed Minister of Public Instruction in 1881–82.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT. U. S. ARMY, FROM NOVEMBER 20, 1886, TO NOVEMBER 26, 1886.

Lieut.-Col. B. J. D. Irwin, Asst. Medical Purveyor, relieved from temporary duty in New York City, and of the charge of the Medical Purveying Depot in that city, and ordered to San Francisco, Cal., to take charge of the Medical Purveying Depot in that city. S. O. 270, A. G. O., Nov. 19, 1886.

Major F. L. Town, Surgeon, ordered from Ft. Clark, Texas, to Post of San Antonio, Texas, to relieve Surgeon J. P. Wright. S. O. 159, Dept. Texas, Nov. 15, 1886.

Major Joseph R. Gibson, Surgeon, ordered for duty as Post Surgeon, Ft. Sayon, Col. S. O. 134, Dept. Mo., Nov. 20, 1886.

Capt. J. L. Powell, Asst. Surgeon, ordered for duty as Post Surgeon, Ft. Supply, Ind. Ter. S. O. 134, Dept. Mo., Nov. 20, 1886.

First Lieut. Freeman V. Walker, Asst. Surgeon, assigned to duty at Ft. McIntosh, Tex. S. O. 159, Dept. Texas, Nov. 15, 1886.

First Lieut. Paul Clendenin, Asst. Surgeon, recently appointed, ordered to report to commanding general Dept. of Texas, for assignment to duty. S. O. 271, A. G. O., Nov. 10, 1886.

Capt. Henry Johnson, Medical Storekeeper, will, in addition to his present duties, assume charge of the Medical Purveying Depot in New York City as Acting Asst. Medical Purveyor. S. O. 270, A. G. O., Nov. 19, 1886.

APPOINTMENTS.

Lt.-Col. John Moore, Asst. Medical Purveyor, to be Surgeon-General of the Army. Nov. 18, 1886.

Ball, Robert R., to be Asst. Surgeon, with the rank of First Lieut. Nov. 19, 1886.

PROMOTIONS.

Major Joseph C. Bailey, Surgeon, to be Asst. Medical Purveyor, with the rank of Lieut.-Col. Nov. 18, 1886.

Capt. Chas. L. Heizmann, Asst. Surgeon, to be Surgeon with the rank of Major. Nov. 18, 1886.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY, DURING THE TWO WEEKS ENDING NOVEMBER 27, 1886.

Nash, Francis S., P. A. Surgeon, ordered to special duty at Smithsonian Institution. Nov. 26, 1886.

Rhoades, A. C., U. S. N., Medical Inspector, ordered to special duty attending officers and families, New York City.

Law, Homer L., Surgeon U. S. N., ordered before the Retiring Board, Dec. 2, 1886.

Lippincott, George C., P. A. Surgeon U. S. N., ordered before the Retiring Board, Dec. 6, 1886.

CORRIGENDUM.

In THE JOURNAL of November 27, p. 597, in third line from last of Dr. Gaston's remarks on Dr. Smith's paper, for "pus" read *fæces*.